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Beware the 'Counterfeit' DP Executive: Recruiter

By Kurt Einstein
Special to Computerworld

Data processing managers generally are highly respected for their integrity, precision and technical skills. However, a few DP managers, including those on top management levels, are frauds.

In fact, several industries currently are being plagued by tremendous losses due to counterfeit executives.

The term counterfeit executive was coined a few years ago with the discovery of a new type of incompetent executive, an individual who shrewdly and consciously conceals his gross inadequacies and often succeeds as a result of his glib, sophisticated facade.

The economic recession has hit the data processing

field much harder than other fields. As a result, an unemployed DP technician now is tempted to pose as a manager or administrator or anything else which might be available, even though he may be totally inexperienced and unqualified in these non-technical areas.

A DP systems manager, particularly one with first generation computer experience often is not a conceptualist. There is a scarcity in all industries of talented administrators with conceptual abilities.

It is not an indictment of the computer field to state that DP managers often are poor administrators but it is shocking that some technicians try to pose as administrators when they lack the multitude of subtle skills required in supervisory positions.

A trend appears to be growing in large firms toward the selection of financial executives and other generalists to head DP operations. These executives may have less DP and other technical experience, but, more important, they are adept at budgeting, planning, human relations, and other management prerequisites.

These skills are hard to test and the counterfeit executive often can fool an interviewer by use of a multitude of technical DP terms.

The counterfeit engages in manipulative deceptions and can more or less move with the tides until such time as he will be unmasked by a crisis situation.

Generally he is aware that he is ill equipped for the

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Ombudsmen Exceed 1971 ACM Goals

By Edward J. Bride
Of the CW Staff

NEW YORK — If a computer professional finds it difficult to come to grips with an "errant system," how difficult it is for the layman?

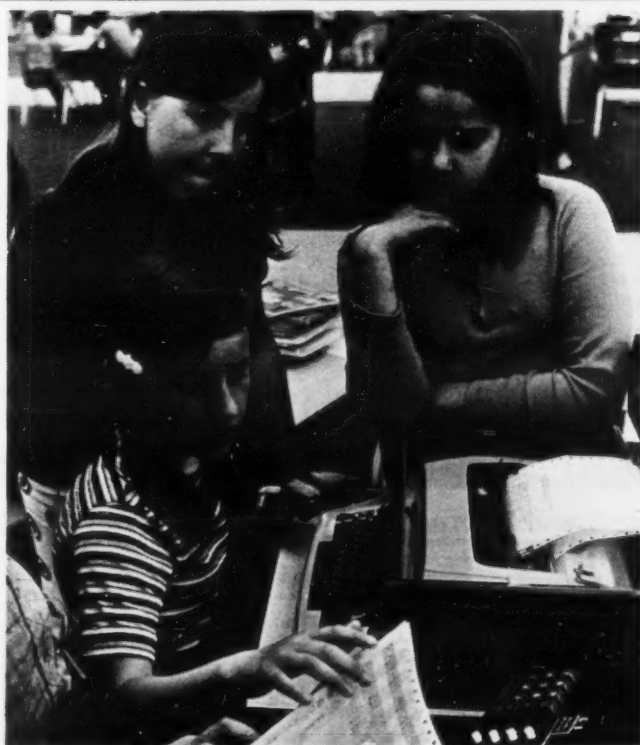
Solving this problem is the challenge facing the ombudsman program evolving under the guidance of the Association for Computing Machinery (ACM), headquartered here.

The program is in operation in about a dozen of the association's 80 chapters, according to a report submitted to the ACM Council. Some chapters have also initiated their own programs without waiting for a formal ACM seminar and training program.

There are three "phases" of implementing this program, which is aimed at informing the public of the true causes of computer problems, and correcting these problems.

Phase one involves assessing the

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Book Looking

Elementary school students Karen Kenyon (at keyboard), Gwen Reuther, and Kelly Ranches use Kodak's experimental Electronic Index Console in place of a card catalogue to seek reference material at the Kirk Road School, Greece, N.Y. About 250 third- through sixth-graders have been taught to use the special purpose, Kodak-built digital computer that uses disk cartridges.

U.S. Computers 'Aid' S. African Apartheid

By E. Drake Lundell Jr.
Of the CW Staff

WASHINGTON, D.C. — Computers are "the key U.S. contribution" to South African apartheid, according to The American Committee on Africa.

The committee, which calls itself a "support group for the liberation movements in southern Africa," said a computer system will be used to compile dossiers on all blacks in South Africa.

In addition, it charged that computers are used by South African businesses to alleviate the need for training blacks for responsible positions.

Registration Program

Under a Population Registration Act passed by the South African Parliament in 1970, the government will computerize the record system to maintain apartheid, the committee said.

Under the registration program, every black African is required to carry a 50-page blue identification document, with information on age, sex, race, citizenship, district in which

he normally resides, ethnic group or tribe to which he belongs, permits to leave the country, education, etc.

This information will now be placed on a computer system, an IBM 360/50, which will become operational in February after a delay of over six months.

All dossiers will not be in the system initially and it is scheduled for completion within five years.

'Boon to Regime'

"South Africa's system of apartheid rests firmly on rigorous and detailed police controls, and the computer which can streamline and speed up enforcement of the controls will be a boon to the white regime," the committee charged in its statement introduced into the Congressional Record by Rep. Jonathan B. Bingham (D-N.Y.).

Congressman Bingham, who indicated he did not agree with all the charges made by the committee, told CW he felt the issues raised needed wider dissemination.

"I believe," he said, "that U.S. firms in South Africa should actively oppose apartheid if they are going to do business there or they should pull out."

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High Court Seen Likely to Reject Patents

By Harold J. Spaeth
Special to Computerworld

Of major importance to the computer industry — hardware and software — is the issue of legal protection for creators of software.

At present, it is possible to copyright computer programs. To date, several hundred have been so protected. Patentability, however, is another matter.

The Court of Customs and Patent Appeals (CCPA) held in *Prater & Wei* that computer programs are patentable. Last May, CCPA recommended approval of the Benson-Tabbot program for converting BCD data to true binary.

Dr. Spaeth Has High Batting Average

If the Supreme Court decides to rule on the issue of software patentability, it will overturn these patents, according to Dr. Harold Spaeth, Michigan State University political science professor and author of the syndicated newspaper column "Supreme Court Computer."

Spaeth's simulation of Supreme Court decisions has brought a high degree of accuracy, 91%, [CW, July 28]. He was requested by CW to

simulate the court's possible action in reviewing one case: the Benson-Tabbot patent, and the overall issue of software patentability [CW, Oct. 13].

Because of a lack of precedent in this issue, the computer was not used. Rather, Spaeth called on his familiarity with court decisions, and with political science; he also performed special research into this issue, as outlined in his article.

In order to terminate uncertainty about the patentability of software, the Information Indus-

try Association requested the Solicitor General to appeal *Benson-Tabbot* to the Supreme Court. This the Solicitor General has done.

How will the Supreme Court decide?

Most of the Supreme Court's decision-making may be categorized into issues that pertain to discrete periods of American history. Not so with regard to patents and copyrights. Since the days of John Marshall, the court has produced a small but continuous stream of patent and copyright decisions.

Although the specific question for decision in these cases varies

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GTE INFORMATION SYSTEMS

Justice Agencies in Ten States On FBI Criminal History File

By Edward J. Bride
Of the CW Staff

WASHINGTON, D.C. — Criminal justice agencies in "about 10 states" have gone on-line with the Computerized Criminal History (CCH) file of the FBI, an official said last week.

These agencies include police, courts, and corrections institutions for the first time, he stated, increasing the likelihood of obtaining "last minute" criminal data instead of obtaining records of arrests without dispositions.

Formerly, only police agencies could enter and extract data, he explained. While a police official would make an arrest report and perform fingerprinting, the courts or corrections officials would not be held responsible for updating files in the computerized National Crime Information Center (NCIC), of which the new file is a major part.

In addition to the proliferation of computer terminals to two new portions of the criminal justice community, the computer program has a "built in tickler" instruction, so files that have not been updated with disposition

information are flagged, and the station responsible for input is notified.

The official emphasized that "only duly authorized" agencies can communicate with the CCH file, and he denied reports that insurance companies could obtain arrest data.

Under a recent federal court decision, he continued, the FBI is prohibited from providing this information to local police departments, if the data was requested by banks, insurance companies, or other unauthorized concerns.

Identifies Operators

In explaining the government's position on protecting this information, the FBI official said "there is a method, provision has been made" to identify the actual operators of terminals, and not just the terminals themselves.

He declined to elaborate, however, on exactly what these procedures involved.

A total of 20 states have been funded for conversion to CCH, which required installation of an

IBM 360/65 at FBI headquarters here, along with the 50 and 40 installed for NCIC. The other states are awaiting delivery of equipment or installation of communication lines.

When CCH was evolving as an experimental project under the Law Enforcement Assistance Administration, there was some concern that juvenile offenses might be entered into the permanent file.

This is not the case, unless a juvenile is charged with a violent crime and is tried as an adult. Under these circumstances, he would be fingerprinted and his record would be entered in the computer file, the official explained.

Implementation by New York state was reportedly delayed because a line had not been installed between Albany and Washington. The New York system is expected to be completed this year, according to reports.

By 1975, the FBI said, all 50 states should have completed their implementation of the new file.

Beware of the 'Counterfeit' Executive

(Continued from Page 1)
job he seeks and will develop a facade of respectability to cover his inadequacies.

Characteristics

The counterfeit, either consciously or not, exhibits very definite, definable and intricate characteristics.

The typical counterfeit execu-

tive is gregarious, articulate with well-developed manipulative skills, outgoing, well-groomed, overly agreeable and always ready to please.

The very characteristics that help to get him hired and propel him into higher, more prestigious positions are precisely the same ones that top management often mistakes for talent and ability.

The counterfeit is a tremendous threat to a company. Because he occupies influential management positions, his decisions often result in high financial disaster and subsequent shake-ups. Some companies even fold just because of an overabundance of counterfeit infiltration.

A 1968 study of 60 corporations that went under revealed that in 56% of the cases imposters were a substantial contributing factor.

Even during stable economic periods when employment is peaked, a certain percentage of top men will be executive desperadoes.

When these men are "discovered," they are often tolerated because "he's already on the job," "no one likes to admit making a mistake" and besides, "can one individual do that much harm?"

You bet he can, and does.

New Type of Counterfeit

Today, in this uncertain economy, a new type of counterfeit is burgeoning alongside the established self-deceiver and pathological liar.

He is the honest, experienced, capable businessman who is out of work and desperately seeking to find employment.

As his unemployed days stretch on and his chances look increasingly ominous, he finds himself rationalizing all sorts of

alternatives.

Tactics that were unacceptable to him in a healthy economy with a secure job are now being pursued. The numbers of this new type of counterfeit are growing.

Diabolical Behavior

This new counterfeit is desperate and under so much pressure that his behavior seems almost diabolical. For example, he operates with several different resumes, each with different orientations and different data.

He may apply for jobs that are entirely different in nature than his past work. He'll even get friends to lie and cover for him.

Today's counterfeit executive is extremely bright and, therefore, hard to detect. In some positions, a potential counterfeit can even be employed successfully, were he not misguided professionally.

But beware, the counterfeit is potentially damaging to corporate health.

K. Einstein is president of Einstein Associates, a New York executive search firm.

Coal Mine Problems Studied

LOS ANGELES — Proposed solutions to problems such as rock falls and collapsing roofs, extraction of fatal methane gas and reduction of air-borne coal dust are being studied with the help of a simulated coal mine.

The model of a bituminous coal mining operation was developed by Computer Sciences Corp. under a \$300,000 research contract from the Federal Bureau of Mines.

The model, which consists of a series of equations, is being used to predict the effect of new equipment and procedures and study solutions to safety problems.

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Ombudsmen Exceed 1970 ACM Goals

(Continued from Page 1)
of-its-kind consumer data bank may enable Wisconsin ombudsmen to establish a file that would be "valuable in setting up similar systems in other states."

In Madison, the ombudsman discovered the state attorney general had created a computerized file on complaints, broken down by type, frequency, and county. In other locations, such data banks are being kept by agencies without legal authority.

In a meeting with state officials, it was suggested that the Madison chapter might assist the state's limited systems development group in improving the versatility of this consumer data bank.

An ACM official noted that Ralph Nader's consumer group had proposed a similar data bank on a national scale, and the experience in Wisconsin could provide a base.

Early in the stages of the ombudsman program, ACM President Walter Carlson said he would be pleased if three chapters were "active" by the end of 1971. He was especially pleased, he commented, to note his goal had been exceeded.

The program received impetus by ACM's study into the myriad problems experienced in Detroit's computerized elections.

The Detroit chapter's study is given to new ombudsmen as an example of the "thoroughness" expected of such investigations, ACM said, noting it is "fast becoming a classic in its field."

The program is also expected to alleviate the growing instances of public problems, such as billing errors.

In the recent *Afips-Time* magazine public attitude survey, over one-third of the respondents said they had problems because of a computer, and half of the problems were with billing systems [CW, Nov. 24].

Additionally, 24% said they had a problem correcting bills, but 17% said they knew the problem was a "personnel fault."

The *Afips-Time* study revealed that 81% of the respondents feel computer mistakes are really mistakes made by people who use computers; 77% said companies frequently blame computers for mistakes really made by their own people.

In formulating an ombudsman program, an ACM official may coordinate his training with representatives of the IEEE Computer Society or DPMA. Officers of both societies have expressed a desire to cooperate and participate in this public program.

At each training session, members tell their own personal stories of "how they came to

grips with an errant system," the ACM report noted.

"They all experienced difficulty in correcting the problem," the report continued. "If computer professionals find it difficult, how difficult can it be for the layman?"

Most people are unaware of "abuses such as credit and interest charges which are arbitrarily programmed into a credit system," the report said, giving an example of phase one, identifying the problem.

Computer schools continue to provide a major area for concern, as "all BBB offices agreed that they needed help" with the problem of "commercial computer schools," according to the ACM report.

The problems ACM feels are most significant are how to:

- Advise young people in choosing a school
- Evaluate the course for relevancy to the needs of the present job market
- Avoid the abuses of fraudulent or misleading advertising (it was estimated, ACM said, that one school in Connecticut offered its salesmen \$600 of a \$1,000 course fee).

Computers 'Aid' Apartheid

(Continued from Page 1)

In addition, Bingham said he felt it was "highly questionable" for U.S. firms to make computer systems available to help the South Africans carry out their apartheid policies.

But "number one policeman" is not the computer's only job in South Africa," the committee said, pointing to a growing number of business firms that are employing computers in their operations.

"One of the most dangerous aspects" of computer use in South Africa "is the extent to which apartheid supporters may find automated solutions (consistent with white control) to the artificial scarcity of skilled labor created by job discrimination laws," the committee stated.

Use of computer systems takes some of the pressure off the need for skilled workers so that South African business will not have to train and upgrade blacks they employ, the committee said.

"U.S.-owned computer firms in South Africa may insist that they oppose apartheid and are helping their workers in spite of it," the group said.

DP Helps Apartheid

"But the fact is that their computers can do more than any other technique to enable apartheid to survive; computer methods allow the economy to run with a minimum number of skilled workers, methodically reducing the economic pressure that was beginning to force training and upgrading on the job for black workers," it added.

The committee singled out IBM for blame, even though many other U.S. computer manufacturers have dealings in the country.

"If IBM continues its growth in South Africa, it will become an indispensable pillar of apartheid," the committee charged in

the statement, referring particularly to the role of the IBM computer under the Population Registration Act.

The wholly-owned IBM subsidiary in South Africa employed about 1,000 workers at the end of 1970, but only 75 were non-white, and only about 50 were Africans, the report said.

The statement also noted that United Nations General Assembly Resolution 2506 calls on member states to "desist from collaborating with the Government of South Africa by taking steps to prohibit financial and economic interests under their national jurisdiction from cooperating with the South African Government and companies registered in South Africa," according to the committee.

In reply to the charges, an IBM spokesman said:

"We believe the views expressed by the American Committee on Africa concerning IBM are somewhat one-sided and unfair."

"IBM is opposed to any practice which discriminates against men on the basis of race."

"As a corporation we believe that trade policy is a matter for government decision and that corporations should not attempt to apply economic sanctions where U.S. government policy does not."

"South Africa is one of 112 countries outside the U.S. in which IBM does business. Our South African company is primarily a marketing organization handling both computers and office products."

"We believe our presence in South Africa is a positive force for good — good for the whites, blacks, and other non-whites in IBM, all of whom work under the same salary formula and the same benefits program. We have job training and other programs in place and will continue to push in this positive direction."

News Wrapup

Senate to Seal Tax Preparers' Lips

WASHINGTON, D.C. — A legal loophole that allowed operators of computer-based tax preparation systems to use individuals' financial records for other than tax purposes is in the process of being closed.

In the Senate version of the new tax bill under consideration here, an amendment by Sen. Charles Mathias (R-Md.) was adopted that makes it illegal for a tax-return preparer to disclose a client's tax data to someone else or use the data for any purpose other than filing the return.

There have been complaints in recent years about tax preparers using confidential client information for sales prospects or credit reporting purposes, but now those uses would be barred.

The maximum penalty would be \$1,000 and/or one year in jail. The bill now has to go to a House-Senate conference committee to work out differences in the House and Senate versions. Since the House measure does not contain the Mathias amendment it will have to be adopted by the full House before the President can sign it into law.

Supreme Court to Try Army Data Bank Suit

WASHINGTON, D.C. — The U.S. Supreme Court will rule this session whether individuals have the right to sue the government over surveillance and data bank operations conducted by the Department of Defense.

The court, however, will not rule at this time whether such surveillance and data bank operations are legal or not, but will decide if dissenters have "standing" to sue the Defense Department.

The suit, which was originally filed by the American Civil Liberties Union for more than a dozen groups and individuals against Secretary of Defense Melvin Laird, charges that the Army has exceeded its authority in its surveillance of "lawful political activity."

Study Would 'Bring City to the Country'

HARTFORD, Conn. — The State of Connecticut has asked the Department of Housing and Urban Development for \$400,000 to study how computers could bring the city to the country.

The project would test the feasibility of spreading offices around the countryside, using computer and communications links to allow hospitals, schools, businesses, and entertainment facilities to exchange information.

The one year study would explore how business, medicine, and education are practiced in rural areas, and how electronic communication links could "urbanize" these processes.

DP Collection of Back Taxes Nets \$3 Million

INDIANAPOLIS, Ind. — More than \$3 million has been collected by the Department of Revenue, according to James O. Mathis, commissioner of revenue, during the 10 months of operation of its new computer system.

Delinquent sales taxes are determined by the computer and then collected by the division's investigators.

The \$300,000 collected per month is money, Mathis said, "the state simply would never see" if it weren't for the new system.

Three Continents Put London Stage On Line

LONDON — Effort on three continents is putting a history of English theatre into a computer.

Professor Ben Schneider of Lawrence University, Appleton, Wisconsin, is in the process of putting 11 volumes of *The London Stage*, a calendar of London theatrical events from 1600 to 1800, into data base form for use by theatre historians.

An edited text is being typed in Hong Kong, and will be converted to magnetic tape in Wembley, England. The conversion to tape will be done by a Scan Data 300 optical character reader.

The tape will be processed on an ICL 1909 at a British service bureau, Computer Services Centre, and then returned to Schneider for final processing.

San Diego Simulates San Diego

SAN DIEGO, Calif. — The Comprehensive Planning Organization (CPO) here is looking into the future through the use of a computerized model of San Diego County.

Factors related to population and employment have been programmed, according to Richard J. Huff, executive director of CPO, and CPO members can feed a combination of factors into the computer and receive a comprehensive forecast for any of the next 25 years.

System Takes Painting's Fingerprint

NEW YORK — Step right up and put your Picasso in the data bank. A veritable fingerprint file for paintings is being established by the International Art Registry to identify paintings and help foil art thieves.

The method for creating a unique identification for each painting is based on the uniqueness of each artist's brush stroke. A small area of a painting is photographed against a grid, and the microscopic measurements of the swirls and ridges of paint are digitized and stored on microfilm.

The information is then stored in a computer for immediate access by law enforcement agencies, and for permanent registration of the painting and its owners.

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Two Programs Help Wean Junkies Off Heroin Kick

By E. Drake Lundell, Jr.

Of the CW Staff

NEW YORK — Heroin addiction has long been recognized as a major national problem and now computers have been put to use in a program designed to wean addicts from the dependence on the drug.

Two standard data processing packages have been designed to aid both administrators and researchers in the area of methadone maintenance treatment of addicts.

In methadone maintenance an addict is supplied with the drug methadone, which blocks his craving for heroin.

The two computer packages developed to date were discussed recently by Dr. Alan Warner at the Third National Conference on Methadone Maintenance Treatment. He also outlined some future ways of employing the computer in the fight against drug addiction.

The two packages developed so far, under financing from the New York State Narcotic Addiction Control Commission, cover the registration intake of patients in the system and the actual treatment of addicts.

The intake package basically compares the identity of each new patient with over 9,000 records of applications, patients and ex-patients in the system in order "to determine whether the applicant is known to one or more facilities" that are tied into the data system, Warner said.

The system will supply the new contact point with information on whether or not the patient has been treated before, and if so where that treatment took place.

Treatment Package

The treatment programs are available to the 65 clinical units in the methadone program and those units now treat over 4,000 patients, Warner said.

The system includes a monthly clinical summary report on the status of a patient's work, school, crime record, etc. In addition, a weekly report of all patients in a particular clinic, containing such information as attendance, is given by the system.

The treatment package is also used to

prepare a weekly supply of medication labels on which the patient's name, ID number and doctor's name are printed. Preprinted urinalysis and pharmacy forms are also provided, with appropriate spaces for entry of drug test (by urinalysis) and prescription data, he said.

Administrative data includes a weekly census tallying all admission, transfers, discharges, and total patients in treatment are made weekly for each unit and for groups of units under a given administration.

Research Aid

An important function of the system is the maintenance of data for the Columbia University evaluation committee, which is studying the effectiveness of methadone maintenance programs.

In addition, all machine retrievable data is maintained in a variety of files, accessible for retrieval for special research studies carried out by contributing units

or cooperating researchers, Warner said.

Costs of the System

While the costs of the system depend on "several major variables" it was found that in "a system maintaining 1,000 patients . . . our costs were \$100 per patient year" Warner said.

"With double the patient load, we have estimated costs at \$65 per patient year, thus showing the power of patient volume on reducing unit costs," he added.

"Our most recent estimate, for a patient load of 3,000 without systems development, is \$40 per patient year," he said.

"As we move ahead from a present patient load of 4,000 to a foreseeable 25,000 within 3 years we feel that the standard data packages can be maintained, with reasonable cost control, if we are conservative in the face of new systems development," he claimed.

New operations that are being computerized in the program include a record of

methadone doses so that relationships between dosage and patient response variables may be studied, he said.

In addition, researchers are developing an optical recognition system that will read urine test data for entry into computer files. The urine test is used to determine if a patient is still using heroin.

The researchers are also developing a cost control system for breaking out costs of sections of the standard data packages for groups of units, and isolating developmental from routine system maintenance costs, Warner said.

The treatment package will also be offered to private clinics with 25 or more patients, providing the clinic meets the commitment to reliably fulfill data requirements.

The intake package will not be available to private clinics, however, unless the are affiliated with a facility that has an intake office operated in conjunction with the state and city programs, he added.

Sturdy branch on the family tree.

The DM-314 Disk File System is the founder of a family line of Disk Drives from Ampex, the computer peripheral company.

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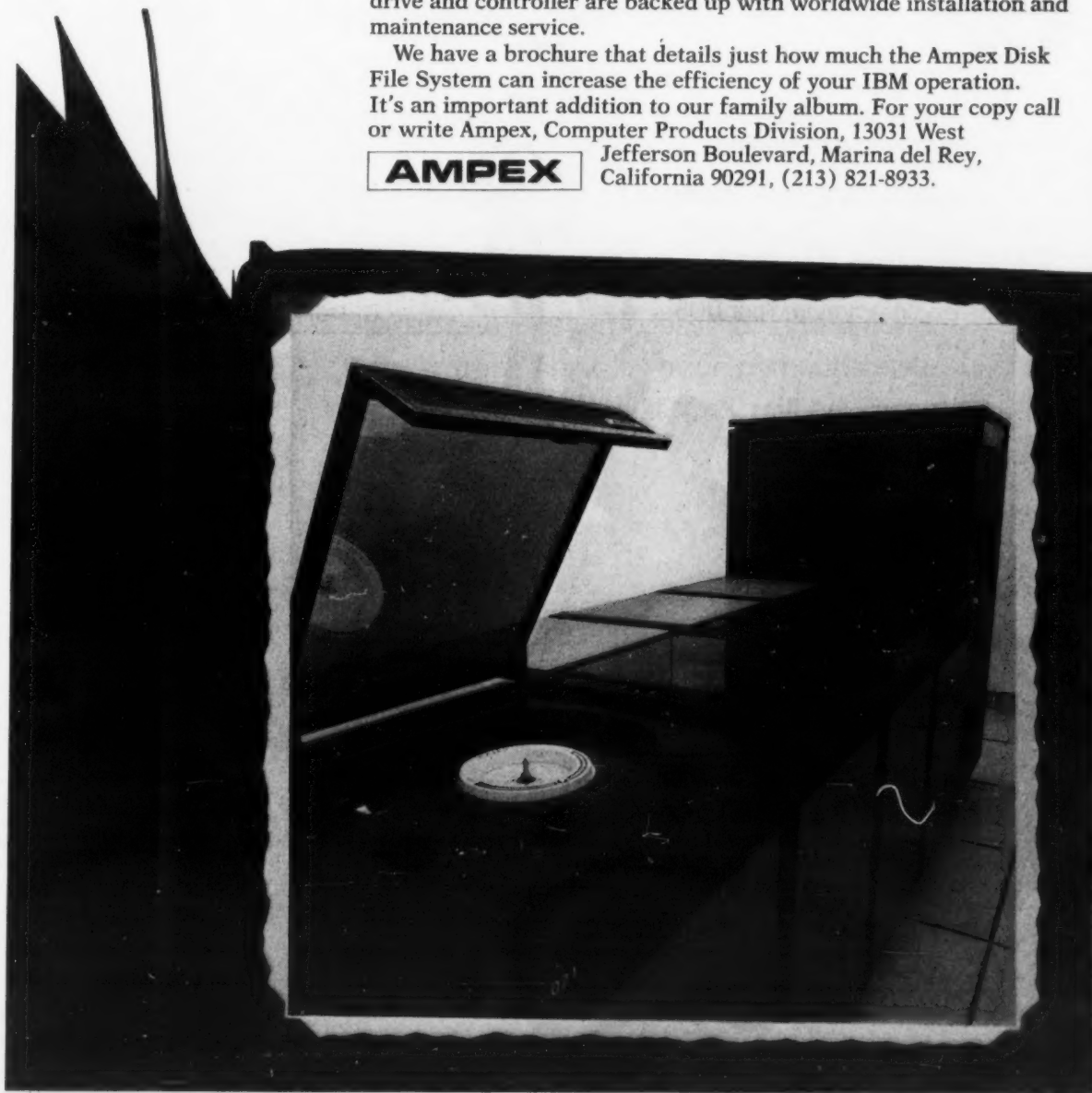
Sharp Assessor Uses Digitized Map, Photo To Catch Tax Evaders

ST. LOUIS — An attempt to keep property improvements off the tax roles in St. Louis County could prove foolhardy. Not only do the assessors employ the usual methods of noting all improvements, but also they have at their disposal a computer system that can "see" what is going on.

The key to the system is a digitizer interfaced to the county computer. It produces an overlay containing symbols pointing out where all known improvements are located and charts the physical description of streets and intersections. By placing the overlay on an aerial photograph, assessors can see whether all improvements and structures have been noted.

Structures that previously have eluded assessors, have been brought to light by this method, according to Robert Peterson, supervisor of mapping and property information in the county revenue department.

Normally, though, the computer serves as a storehouse of tax information and is the key to making the department the finest in the country, according to Director of Revenue Edmund Pung. "Nobody likes paying taxes, but taxpayers, in general, accept them if they know everybody is paying their share, as he does," Pung stated.



High Court Likely to Rule Against Software Patents

(Continued from Page 1)

greatly, they may be formed into a series of cumulative scales in which the variable motivating the behavior of individual justices is their attitudes toward competition. That is to say, the justices' votes are scaled as either pro or anti competition.

Over the past 13 years, the court has decided 21 patent and copyright cases. All but four were decided in a pro competition fashion — 81%. Furthermore, one-third of the cases were unanimous pro competition decisions. If we exclude the copyright cases, the number of cases reduces to 17, of which 67% were decided favorably toward competition.

The voting behavior of the justices currently sitting on the court is:

	Patents & Copyrights Competition			Patents Only Competition		
	pro	anti	%	pro	anti	%
Douglas	17	3	85	14	3	82
White	14	3	82	13	3	81
Brennan	16	5	76	12	5	71
Marshall	3	1	75	3	1	75

	Patents & Copyrights Competition			Patents Only Competition		
	pro	anti	%	pro	anti	%
Stewart	12	7	63	9	6	60
Blackmun	1	0	100	1	0	100
Burger	1	0	100	1	0	100
Totals	64	19	77	53	18	75

On the basis of this data, the court should decide in favor of competition — that software is not patentable.

The matter, however, is not so simple.

• The court has not yet agreed to decide the *Benson-Tabbot* Case. Unlike the other federal courts, the Supreme Court determines for itself which of the several thousand cases appealed each year it will decide.

The fact that the Solicitor General has requested a decision greatly increases the probability that the court will "decide to decide."

A recent analysis by Sidney Ulmer of the University of Kentucky reveals that the court decides two-thirds of the cases requested by the Solicitor General.

However, the Solicitor General was slow in requesting review. Hence, the likelihood of court acceptance is probably less than 2 to 1.

• Assuming that the court accepts the case for review, only four of the justices have a track record sufficient for prediction — Douglas, White, Brennan, and Stewart.

Marshall has cast but four votes, Blackmun and Burger have cast only one vote each (in a unanimously decided case, at that), and Powell and Rehnquist have not yet been seated.

Analyze Predictor Variables

Consequently, in order to predict their votes, it is necessary to analyze the predictor variables in these persons' backgrounds and relate them to the dimension of Supreme Court decision-making on which the patents and copyrights scale is balanced.

The dimension in question is New Dealism, one of the three "values" (along with

Freedom and Equality) that explain some 80% of the court's decision-making. New Dealism pertains to economic regulation; specifically, governmental regulation of business and labor.

Liberal members of the court maintain an anti-business, pro-labor, pro-competition stance; conservatives, the opposite.

Blackmun and Burger have shown themselves to be conservatives overall on New Dealism, while Marshall is moderately liberal. Rehnquist is likely to be at least as conservative as Blackmun and Burger. Powell, a Southern Democrat, should be slightly to their left, but still conservative.

Unlike all but a handful of the 76 category scales used to predict Supreme Court behavior, the patents and copyrights scale is one of the least replicable. That is, it contains a disproportionate number of nonscale responses relative to the other scales.

Thus, for example, Justice Douglas, a liberal, cast a conservative vote in a 1966 patent case decided liberally by a 7-2 vote.

• The Burger Court, in its two years of existence, has shown itself unwilling to plow new ground. Whether the addition of Powell and Rehnquist will make a difference remains to be seen.

Given its record to date, a Burger Court decision upholding software patentability would be out of character.

• The peculiar configuration of affected publics may have a bearing on the outcome of the issue. IBM opposes software patentability, and the President's Commission on the Patent Law System also recommended no patentability.

Argument for Patenting

On the other hand, a strong logical argument can be made for patenting programs. Reed C. Lawlor, an eminent patent attorney, computer programmer, and former chairman of the Electronic Data Retrieval Committee of the American Bar Association, has written, "Some manufacturers of general purpose computers have instilled in the public the idea that their computers were designed to use programs, and therefore the computer owners should be able to use any programs on them."

"This is like saying," according to Lawlor, that "since I own a machine shop, I should be able to make any machine, regardless of patents or other rights held by others."

Unfortunately for logicians, the path of legal development has never been charted on logic.

On balance, the court will decide the issue against the patentability of software. The vote is sheer guesswork. Douglas, White, Brennan, and Marshall should vote against patentability, followed by Stewart, Powell, Blackmun, Burger, and Rehnquist in order of increasing support for patentability.

But even if the court rules other than predicted, not every program will be patentable. As Reed Lawlor has said, "If a program is not new — if it is not an invention — it is not patentable."

Hospital Has 'Checkless Society'

SARASOTA, Fla. — Sarasota Memorial Hospital has its own version of the "checkless society," an automated payroll which saves about 25% in payroll preparation costs, according to Jack Floyd, associate executive director.

Each employee inserts an ID card with name, picture and Social Security number into a time clock when beginning and leaving work. The time is recorded and transferred to an automated card puncher in the DP room. Every two weeks the computer prints out a roster for the 14 banks participating in its payroll program, and the payroll is delivered to the various banks with the hospital's check for each.

Salaries are deposited automatically, so each employee never receives a regular pay check.

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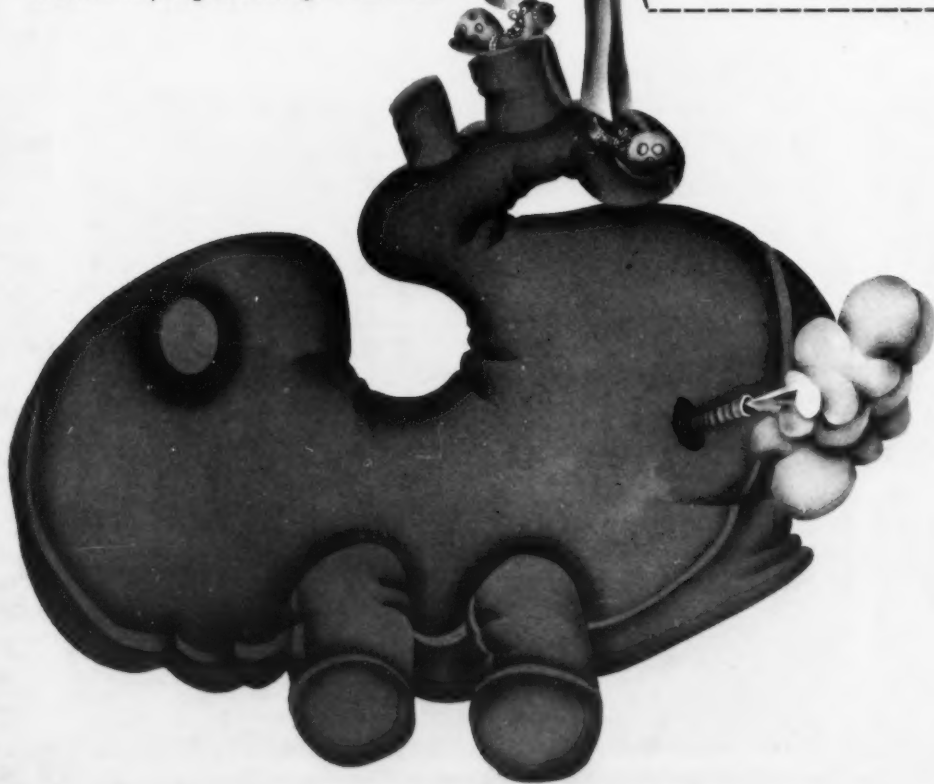


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Civil Engineers to Study Need for Software Center

NEW YORK — A study of the concept of a civil engineering computer software center has been initiated by the American Society of Civil Engineers.

The study will determine the feasibility of the development of such a center to improve, stimulate and facilitate the use of computers by civil engineers and related disciplines.

This initial study is supported by a grant of \$25,000 from the National Science Foundation.

In addition to documenting the value of developing computer capabilities throughout civil engineering practice, the study will seek answers to questions such as:

- What are the problems, professional and otherwise, that

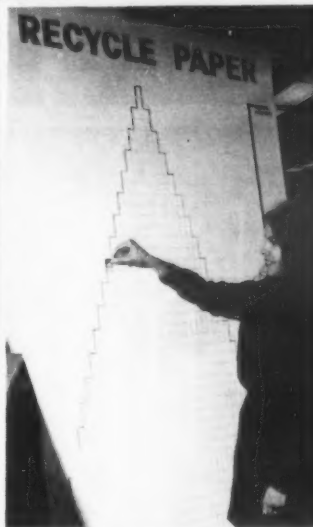
might arise from the establishing of a Civil Engineering Software Center?

- What are the problems associated with engineers being computer knowledgeable enough to utilize such a Center?

- What are the existing centers, organizations, user groups, etc. that might be appropriately involved in the establishment of the Center?

- What sources might be utilized for initially funding the organization of such a Center, i.e., private business, government, professional organizations, user fees, etc.?

The project will be directed by Kenneth G. Medearis, of Kenneth Medearis and Associates, Ft. Collins, Colo.



DP Tree

The National Institutes of Health Computer Center, Bethesda, Md., has begun a campaign among its users to recycle computer output paper. Each employee who collects a box of paper for recycling receives a "leaf" to attach to an eight-foot skeleton tree in the computer room. One thousand leaves or 30,000 pounds of paper are needed to fill the tree. When 15 tons of paper have been salvaged for recycling, a live tree will be planted on the company's grounds.

First H-800 Plays Last Tune

WAKEFIELD, Mass. — After playing a computerized rendition of "Auld Lang Syne" and "Taps," the first Honeywell 800 computer delivered to a commercial customer was shut down last week after 11 years of service to the American Mutual Liability Insurance Co.

The 800's major claim to fame is that it was the first computer capable of true multiprocessing. As many as eight programs could be executed simultaneously and independently on the system.

American Mutual took delivery of the second-generation computer in December, 1960. It has operated an average of 340 days a year, 24 hours a day, for a total of 89,760 hours of calculating, according to Honeywell.

The 800 has been replaced by a Honeywell 8200.

For its final performance the 800 was given a special musical program and connected to a speaker system.

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So it should come as no surprise to learn that the PDP-8 is the most

popular minicomputer ever made. In fact, more PDP-8's are installed every month than all the other minis put together.

Of course, it takes more than versatility to make the PDP-8 so popular. Having more than sixty peripherals to pick and choose from helps, too. As does PDP-8's library of software. It's the biggest collection of mini-computer software in the world.

And all the big computer company backup we offer doesn't hurt either. Over fourteen hundred sales/service engineers, for example.

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(Computerworld, 9-71)

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Editorial

Time to Speak Up

Whither the joint computer conferences? That's the question the sponsoring American Federation of Information Processing Societies is asking itself.

To help answer the question, Afips has established an advisory panel of computer industry representatives. Afips also plans to consult its own constituent societies and a number of other societies and user groups.

All this is fine as far as it goes. But, to some extent, it will be a matter of the same people talking to each other again.

We rode back from Las Vegas with a large user who said the Fall Joint Computer Conference, from his point of view, was a complete waste of his time. He said neither the conference sessions nor the exhibits had anything to offer him.

While Afips is in a reflective mood, now is the time for the users to speak up and say what they want. Users with comments on the joint conferences are urged to write to Bruce Gilchrist, Executive Director, Afips, 210 Summit Ave., Montvale, N.J. 07645.

Which Comes First?



Letters to the Editor

Lease/Purchase Ratio Shows Need for IBM's Regulation

IBM's ability to obtain a purchase price increase on its 370s further creates a disparity between the ratio of purchase price divided by rental minus maintenance. The fact that the Wage and Price Administration and the U.S. Justice Department saw fit to allow this disparity to occur is significant.

The disparity further perpetuates IBM's ability to rent rather than sell equipment. The financial payout is even greater when one considers that the former ratio for IBM 360s was significantly less than the current ratio for the 370s.

IBM's maintenance on the 370s has increased 100% in most cases for CPUs of comparable type. This is hard to explain when IBM says that the new 370s are more reliable than the 360s.

The cost could not have come in labor increases because IBM does not, and has not given labor a significant increase. IBM indicated that the new technology is cheaper in terms of material.

To perpetuate IBM's rental market over purchase at the early point of deliveries of 370s will affect the used computer market of the future adversely. To have this approved by the U.S. government shows the power of IBM. The only changes in the IBM Consent Decree of 1956 have been in favor of IBM.

It appears that IBM should be regulated rather than split up into numerous horizontal monopolies. This significant price disparity during the early stages of delivery, where purchases are mostly made, is critical to the used computer industry.

Thomas E. Doyle

Summit Computer Corp.
Summit, N.J.

'Pseudo Elapsed Time' Aids User in Billing for Jobs

Taylor's article "Computer Bills — Should the Charges Vary?" [CW, Nov 3] discussed some of the problems of charging, both philosophical and technical which arise when a computer installation moves from a single stream (PCP) to a multiprogramming (MVT) environment.

I feel the charging system should be designed so that the charge for the same program run with the same data is reproducible and never impacted by the activities of other jobs running concurrently.

If one believes that charges should be reproducible, then it follows that elapsed

time must not be present in an MVT charging system since elapsed time is not reproducible. One approach is to estimate from SMF data the elapsed time the job would have taken if run in a PCP environment.

The resulting pseudo elapsed time can be used to compute charges for the time that disks, tapes, core, etc., are tied up by the user. Executions of channel program (EXCP) counts then can be employed to arrive at charges for selector channel utilization. We measure printer, card reader and punch counts separately from disk and tape EXCPs and charge them at different rates.

The method used to compute pseudo elapsed time can be as elaborate as you can afford to make it. However, if your installation is an in-house facility, keep in mind that any incremental effort expended to improve the accuracy of the charge system does not generate income for the stockholders.

S. G. Miller, Manager
Computer Systems Division
Standard Oil Co. of Calif.
San Francisco, Calif.

Users Can Record Job Time Despite Multiprogramming

Taylor's report [CW, Nov. 3] seems to say it is either impossible or impractical to charge users for the computer resources they actually consume in a multiprogramming environment.

Hundreds of installations will dispute that conclusion, since they are using the job accounting facility of our Grasp spooling/buffering system. Since level 2.0 of Grasp, non-multiprogramming duration (i.e., the amount of elapsed time the job would have taken were it alone in the machine) has been recorded. At level 2.2, the amount of time actually used by a job on each physical device was added.

Experience has shown these to be fair and practical figures for allocation of costs.

Kenneth W. Kert
Vice-President of Marketing
Software Design, Inc.
El Segundo, Calif.

Maintenance Diagnostics Shut Down All 3420 Drives

One of the improvements mentioned in "Independents Improve on 3420" [CW, Nov 10] is the ability to perform maintenance on a given tape drive while the

others remain on-line. The article states, "With the IBM 3803, all tapes connected to a given controller must be shut down in order to perform maintenance on one of them."

This contradicts an earlier article on the 3420 [CW, Nov. 18, 1970].

Bruce W. Baker
Hartford, Conn.

Good catch. The statement should have read "to perform maintenance diagnostics." Individual drives can be taken off-line for repair without affecting the others. Ed.

Diazo vs. Thermal Film Debate Viewed Differently

We recently read an article [CW, Sept. 29] entitled: "Silver Halide, Diazo, or Thermal Types; Film Choice Depends on Format, Volume and Facilities," by Raymond L. Miller of Xidex Corp. We are disturbed by the article because it tends to give readers the impression that the contents represent an objective evaluation of the films available for distribution of COM-generated microfilm.

In fact, the article presents a biased viewpoint favoring thermal, or "vesicular," film, the principal product of the author's employer.

It is true that many microfilm users are indoctrinated in favor of negative copies as a result of their silver-halide background. Others prefer to go negative to mask soiled or notated background of documents not originally intended for microfilming. Many users, however, especially in the computer area, are using positive imagery because their choice is not dictated by tradition or expediency.

Furthermore, in the past, hard copy users had no choice but to go negative because the only blowback medium was the reversing silver-halide process. Now, however, the availability of non-reversing electrostatic, blow back techniques is giving users a choice. It seems probable that many will choose to stay positive out of COM through copies and hard-copy blow backs.

On the subject of general preference by users for negative versus positive reading of microimages, a recent study at the University of Denver revealed that the students surveyed split 50/50 when given a choice. When one considers that graphics, unlike alphanumerics, are not universally adaptable to negative imagery, the balance in the future appears to be tipped

toward the positive mode.

The cost comparisons which follow in Miller's article are a collection of biases and half-truths rigged to support Miller's statement, "Diazo duplicates are likely to be more expensive than those made on thermal film."

Nowhere is system throughput used as a criterion. It is implied that the speed of diazo duplicators is a handicap rather than an advantage. Miller sets up a "straw man" by adding the cost of reversal processing to produce negative diazo duplicates; such cost is not applicable if the user accepts positive working copies.

As the leading manufacturer of diazo duplicating films and equipment, we at Scott Graphics, on the basis of many cost-justified microfilm copying installations, can state flatly that diazo duplicates are not likely to be more expensive than those made on thermal film.

John R. O'Neill, Director
Marketing Administration
Scott Graphics
Holyoke, Mass.

B9495-6 Is Data Compatible

The article entitled "Tape Drive Faster Than 3420" [CW, Nov. 10] contains a statement that the B9495-6 "... is not IBM compatible."

While the B9495-6 is not plug-to-plug compatible with the IBM 3420 magnetic tape unit, it is both media and data compatible. The Burroughs B9495-6 is capable of reading tape files created on, or creating tape files, that can be used on the IBM 3420 or any phase encoded magnetic tape unit capable of performing with phase encoded recording standards.

Mark A. Lutvak, Manager
Product Analysis
Business Machines Group
Burroughs Corp.
Detroit, Mich.

Speed Should Be Card/Min

In your Nov. 10 issue you included an article concerning a patent covering Bridge Data Products' Multiple Card Readers.

A mistake appeared in the last paragraph. You stated the speeds in characters per minute which are actually cards per minute rates. The numbers stated are correct but they all should be stated as cards per minute.

William E. Lutz, Vice-President
Marketing and Planning
Bridge Data Products, Inc.
Phila., Pa.

Must Management Replace DP in Billing Quandary?

In a recent column I asked a rhetorical question, "Should user prices vary with each execution?" The point was simply that with standard ways of charging for computer use, the price for different runs of the same job normally varied.

I then pointed out, as a result of this problem, a number of users started using the I/O activity as a major, sometimes primary, unit of measurement because the I/O counts did give the apparently valuable characteristics of having a fixed price.

I commented such use of I/O counts can cause slanted pricing, generally undercharging random access units and expensive peripherals, while overcharging tape units and less expensive peripherals.

User, Technician Views

The reactions of readers were very interesting. Henry J. Cadell cut through a lot of the intricacies by saying the computer exists for the user, not the user for the computer. Based on this, and on his claim that the user's interest in the computer application is governed by the charge made, Cadell argued therefore that varying charges are not permissible.

A technical point of view was offered by Robert R. Cromer, CDP. He said program performance is the responsibility of the user, rather than of the installation. In a fair-charge system, the execution time, memory allocation, peripheral equipment and software support at fixed hourly rates would be used to produce charges automatically, he added.

Both correspondents agreed the problem was real, and showed the possibilities of misunderstandings were plentiful.

Management View

The most interesting letter, in my view, came from Clifton H. Merry. Starting off by quietly pointing out I had opened a Pandora's box, and that he expected I was well aware of it, he went straight to the center of the problem.

He wrote, "The only logical answer is that the purveyor of computer services assumes the risk of pricing as a manager function."

Let us look at that sentence. It is an important one.

"The only logical answer is the purveyor of computer services..." What Cadell called a "data processing organization" Merry defines in its correct role as a "purveyor of computer services."

And actually, that is all most computer installations are. They are purveyors of computer services, and they are in the business of selling those services. They are not, in general, major users of such services. As Cadell pointed out, the user is someone else.

The second point, however, in Merry's letter is the price should be set and the risk taken "as a manager function." This clashes with the technical argument, advanced by Cromer, that charging, to be fair, should be automated, based upon various time usages. Between Merry and Cromer, they bring out the real question — is pricing an algorithm based on computer usages — or not? (Figure 1)

Can an Algorithm Cut the Mustard?

Can an automated algorithm, based on the various hardware resources used, conceivably be adequate for a pricing operation? As I pointed out in the previous column, the resources used *do* change outside the control of the real user.

As many other correspondents have pointed out, equivalent changes in the charges for the work performed are nor-

"Computer pricing systems which only use input from the characteristics of computer-time-used are businesses running on a cost-plus basis — and will reap the standard problems that such businesses create, such as excessive overhead and indifference to customers."

mally not acceptable. So — bang goes the idea that an automated function, such as Cromer suggests, will generally be practical and fair.

Which leaves us Merry's proposal of taking the risk of computer pricing as a management — not a computer — function.

Management Decision Possible?

Computer service bureaus have for years

been taking such risks in setting rate schedules — and many of them are still in business. Management-set rates are possible, and would provide the users with those fixed costs he finds necessary. What management-set rates do not provide for, of course, are totally automated charging systems.

They involve changing the basic charging flow chart, from the one shown in Figure 1 with its single input from the computer to provide for a second input — this time from the manager (Figure 2).

And that I think is the big lesson the computer industry has to learn — that

computers cannot do it all. Computer pricing systems which only use input from the characteristics of computer-time-used are businesses running on a cost-plus basis — and will reap the standard problems such businesses create, such as excessive overhead and indifference to customers. In a really fair-charging system something more — like Merry's risk-taking management — will also have to provide an input before the bills can be put out.

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The Taylor Report

By Alan Taylor, CDP

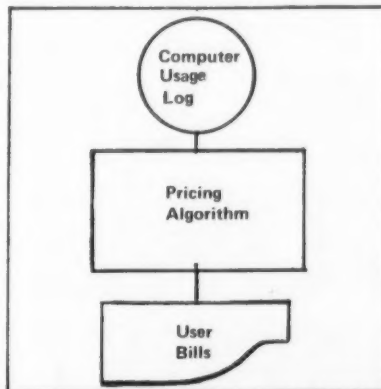


Figure 1. Pricing Computer Production by Value. This flow chart illustrates the basic method of pricing computer usage from machine logs, such as from the IBM SMF system. This method is considered to provide "fair-charge" results although they may vary from run to run. The question raised is whether the efficiency of the program is really the responsibility of the user rather than of the computer installation.

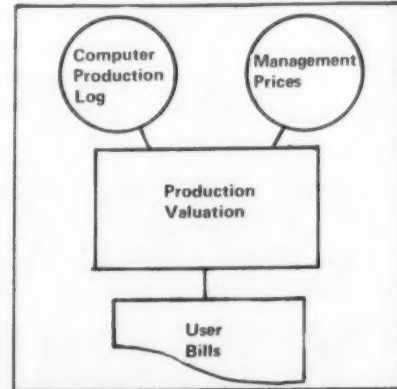


Figure 2. Pricing Computer Usage by Equipment Utilization. This flow chart shows the use of management-fixed prices, modified by actual computer production. In this case the use of the computer log for billing purposes is restricted to showing the amount of actual production which occurred, although naturally other information on the production log will assist the manager in setting prices.

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Keypunching Nuns Add New Dimension To the Secluded Life in a Cloister

DUNWOODIE, N.Y. — Computer operations are measured in millionths of seconds. In a cloister, time is equated with eternity. Yet, eight cloistered nuns are now serving as keypunch operators for the New York Archdiocesan Data Systems Center at St. Joseph's Seminary, here.

The center's director, Brother Austin David, pointed out that there is nothing new about monasteries contributing to worldly needs without compromising the rigid requirements of contemplative living.

Three Hours for Manual Labor

It all began about three years ago, according to Brother David, when he learned that the nuns at the Carmelite Convent in the Bronx were interested in doing computer-related work during the three-hour periods allotted to "manual labor" in their daily schedule of prayers and devotions.

Their efforts had been confined to making clerical vestments and liturgical materials, but action

taken at Vatican II substantially reduced their income from this source and forced them to find other financial support.

Previous Experience

Four of the nuns had developed typing skills before entering the convent, so keypunch training presented little difficulty.

The necessary equipment was installed in the convent and two women on the staff were assigned as instructors.

Meanwhile, the Dominican nuns at Corpus Christi Monastery, also in the Bronx, heard about the project and offered their services, so a keypunch unit was installed there and four more nuns were selected for training.

No Rush Jobs

The Univac 9400, installed in the center almost a year ago, handles up-to-the-minute data on the multi-faceted business and administrative affairs of

the Archdiocese. But because of the rigid schedules "rush jobs" are anathema in a cloister, so the nuns are assigned long-



Sister Micheline uses a Univac 1710 verifying interpreting punch.

term projects such as personnel records, high school students registry and Catholic charities donors lists.

Communications with the silent and secluded nuns was established easily. Externs, who are responsible for making all contact with the outside world, act as intermediaries and relay instructions to the nuns involved in the project.

Future Plans

Future plans include increasing the number of cloistered nuns on the project as well as expanding their responsibilities.

Recently a programmer's test was conducted and several nuns presently employed in the keypunch work qualified easily.

As they develop proficiency as programmers, the base of services offered at the center will be expanded.

Malfunctioning Thyroids Diagnosed by Computer

WOODBIDGE, N.J. — Scientists here are using two computers to aid in the diagnosis of thyroid disease. According to Hugh Pribor of Perth Amboy General Hospital and Casimir A. Kulikowski of Rutgers University, computer aided diagnosis is especially needed for more accurate and less costly identification of unusual cases of the disease.

A computer at the hospital records and codes patients' histories and test results, while a university computer evaluates the data in accordance with statistical probability formulas.

The chance that a patient has a malfunctioning thyroid is calculated giving doctors quick and reliable information to aid in interpreting the patient's overall condition.

Both scientists hope that computer aided diagnosis will eventually be extended to other fields of medicine, as well.

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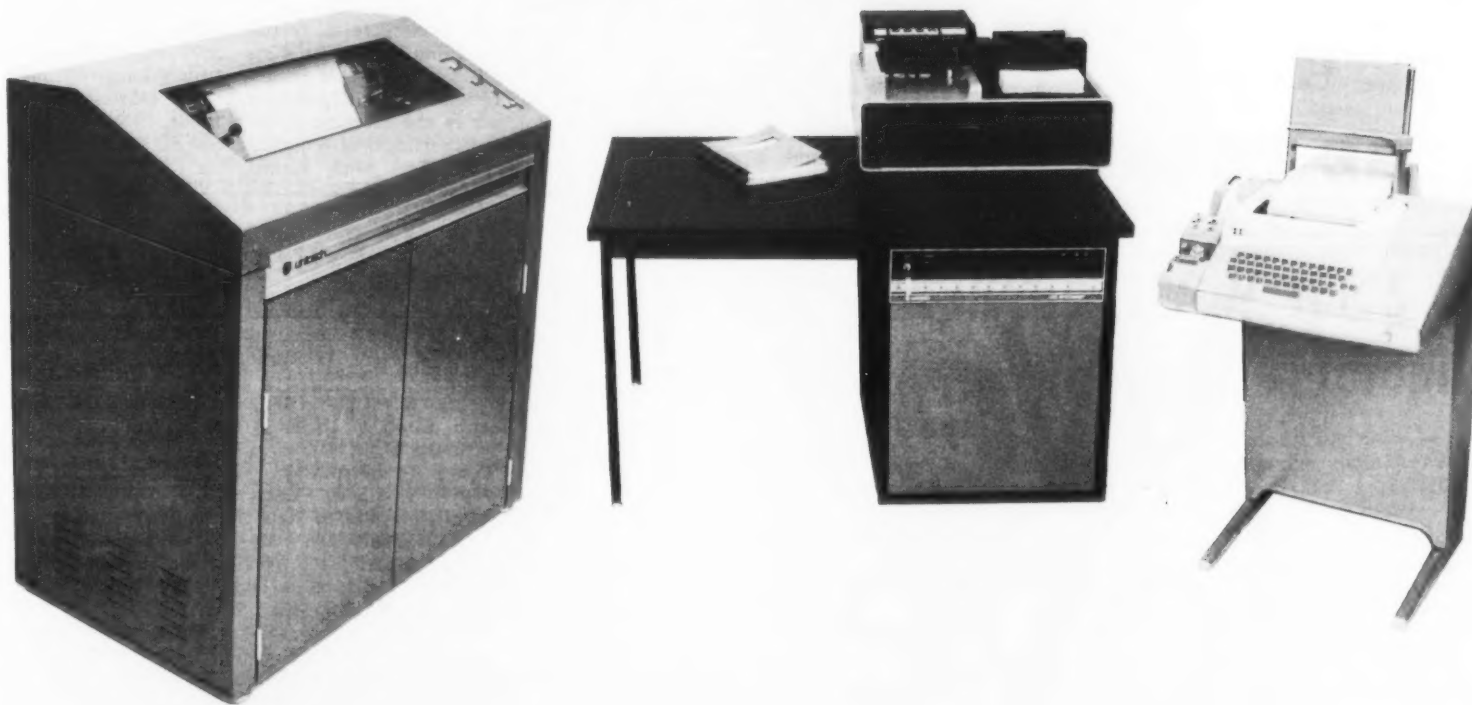
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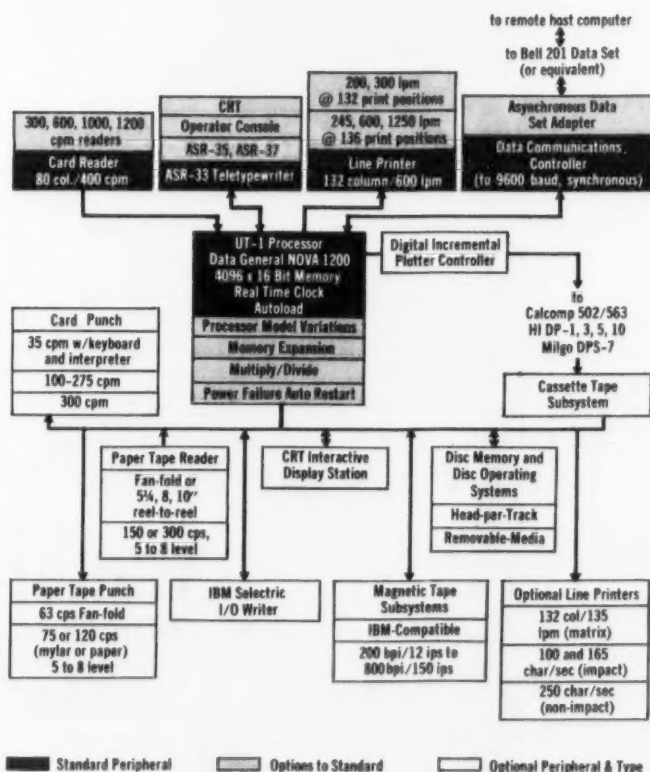
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Programing Confab Seen 'First'

NEW YORK — Software techniques needed to design and prove out large complicated programs will be explored in a conference sponsored by ACM's Special Interest Group on Pro-

gramming Languages (Sigplan) in Las Cruces, New Mexico on Jan. 6-7, 1972.

Societies/ User Groups

Conference Chairman J. Mack Adams said, "Current methods of developing large, complicated programs leave much to be desired, particularly when compared with the relatively successful methods used in other fields. We seem to be much more adept at constructing skyscrapers than in developing operating systems.

Discussion topics will include the design of languages to facilitate proofs, relationship of formal language definition to proofs of assertions, equivalence to problems of logic, implications of undecidability results and proof methods based on in-

duction.

ACM conferences and symposia committee chairman W. Smith Dorsey sees the conference as a possible first-in-a-series because of growing interest in the subject area. For more information see "Calendar" below.

Study Group Formed for OS Design

NORTHRIDGE, Calif. — A new Technical Committee has been formed within the IEEE Computer Society to study the theoretical and experimental aspects of operating system design.

Dr. Thomas H. Bredt, assistant professor in the Electrical Engineering Department of Stanford University, has been named

chairman of the committee.

The IEEE Computer Society with 16,000 members, is the largest technical unit within the Institute of Electrical and Electronics Engineers, Inc.

For information contact Dr. Bredt, Digital Systems Lab, Stanford University, Stanford, Calif. 94305.

Calendar

Dec. 8-9, Corpus Christi, Texas — **OCR User's Association Meeting.** Contact: OCR User's Association, 9415 S. Western Ave., Chicago, Ill., 60620.

Dec. 9-10, New York — **Fifth Conference on Applications of Simulation.** Contact: Michel Araten, Celanese Chemical Co., 245 Park Ave., New York, N.Y. 10017.

Jan. 6-7, Las Cruces, N.M. — **ACM Conference on Proving Assertions About Programs.** Contact: R.H. Stark, Computer Science Department, New Mexico State University, Las Cruces, N.M., 88001.

Jan. 19-21, Atlanta, Ga. — **Hospital Information Systems Sharing Group Meeting:** HIS, Its Application, Development and Utility. Contact: Dean R. Cannon, president, c/o Health Services Corp., 15 N. West Temple, Salt Lake City, Utah, 84103.

Jan. 19-21, San Francisco, Calif. — **Eighth Semi-Annual Conference of the Integrated Civil Engineering System (Ices) User's Group on Engineering Applications.** Contact: Ed Lind, Southern Pacific Corp., 1 Market St., Room 1007, San Francisco, Calif., 94105.

Jan. 24-26, San Jose, Calif. — **First Annual Computer Communications Conference at San Jose College.** Contact: Jan C. Matser, c/o Informatics Inc., 3971 E. Bayshore, Palo Alto, Calif., 94303.

Jan. 24-27, Los Angeles — **Third Annual International Environmental Design Conference.** Contact: William J. Mitchell, chairman, Conference Planning Committee, School of Architecture and Urban Planning, University of California, 405 Hilgard Ave., Los Angeles, Calif., 90024.

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Random Notes

Physics Articles Listed
On Monthly AIP Tape

NEW YORK — Physicists will be able to keep up to date on research developments through a magnetic tape comprised of extracts of current journals, from the American Institute of Physics (AIP).

The Searchable Physics Information Notices (Spin) magnetic tapes are issued monthly. Each extract includes article title, author's name and affiliation, journal identification, as well as subject classification and references to other articles given in the original paper. Available in several tape formats, Spin can be ordered from AIP at 335 E. 45th St., 10017.

Systems Exchange Offers Help
To Find Packages, Consultants

MOUNTAIN VIEW, Calif. — Users needing advice and counsel on software packages or in-house coding may be able to get help from Systems Exchange Co. (Sysx) and its affiliated consultants across the country.

Sysx does not provide a handbook or catalog of its own, nor does it sell packaged software. Instead, it answers inquiries by culling current and previous issues of already established publications. Coding problems are referred to consultants in the user's area. Sysx is at 1100 El Camino Real, 94040.

'Big/Mac' Provides Inventory
Management for L.A. Businesses

LOS ANGELES — Retail businesses can receive timely and accurate information on current and previous sales, current purchases, total inventory equity and gross profit in the gross reporting period through the Basic Inventory Guide/Management Advisory and Control (Big/Mac) accounting services of Associated Computer Services (ACS).

The batch-oriented Big/Mac generates purchase advisories, listing each item in inventory that falls below a "safe level," how many units to reorder as well as figured cost. An activity report aids the user in recognizing trends. The complete service is available for \$500/mo to \$1000/mo from ACS at 1830 S. Greenfield Ave., 90025.

Package Adapts Pen-Type Plots
To Infomax Electrostatic Unit

SUNNYVALE, Calif. — Software that allows programs originally written for pen-type plotters to drive the Infomax high-speed electrostatic plotter are now available from Infomax, Inc.

Developed for Infomax by Dynamic Graphics, the basic program interacts with conventional plotter coding to reformat the plot tape and to provide raster commands required by the electrostatic plotter. Other software handles hidden lines on three-dimensional surfaces, and shading on smooth surfaces. The basic conversion package costs \$1,500 from 757 N. Pastoria Ave., 94086.

Real Estate Managers Get Help

NEW YORK — Real estate managers can gain a broad range of reports on which to base their operations, with the Total Real Estate Management Systems now available from Data Decisions Corp., 1212 Avenue of the Americas, 10036.

'Datamap' Goes Further

Packages Sample, Report Coding Usage

By Don Leavitt
Of the CW Staff

Two recently announced packages are designed to give IBM 360 users better or cheaper means of measuring the effectiveness of their programming.

The \$250 DOS Program Analyzer from General Electronics is a set of two programs that capture the address of instructions being executed at selected intervals and prints a histogram of the data at end-of-job.

Computer Synectics Inc., (CSI) meanwhile, has released Datamap, a combination of improvements to the firm's System Utilization Monitor (SUM). Datamap provides a means of capturing the contents of any register up to 16-bits long.

The DOS Program Analyzer functions by capturing the contents of the Program Status Word (PSW) at time intervals that can be selected at execution time by the user. The length of time the analyzer is actively monitoring an application program is also user-defined.

Fine-tuning the analysis, by calling for smaller and smaller time intervals on a series of tests, should enable the user to pinpoint exact instructions that are being used heavily.

The Program Analyzer capture program is written in Assembler, runs in F1 and requires only 4K bytes of core. It may be

run in either Single Program Initialization or Batch Job Foreground mode.

General Electronics Inc.'s mailing address is at P.O. Box 79, Lyons, Ill., 60534.

Datamap Detailed

Datamap provides the ability to capture and record data to optimize operating system software, applications programs, data set allocation and transient area usage. It can capture in a CPU, channel, control unit or I/O device, CSI said.

With Datamap, software efficiency may be improved by core mapping, which can be done on a system-wide basis or for an individual program.

Alternately, data set allocations can be optimized through the capture and reporting of cylinder and head addresses used in the seek commands. With such data, the user can identify which data sets end parts of a data set are used most. This might lead to reorganization of the data, and resultant faster run times.

The CSI package can also be used to capture Supervisor calls so users can reorganize the control program to improve use of the transient and core resident areas.

Datamap can be purchased for \$3,500 or for \$175/mo on a lease basis, from CSI, at 328 Martin Ave., Santa Clara, Calif., 95050.

IBM Simplifies RPG-II for S/3
With 'Auto Report' Precompiler

WHITE PLAINS, N.Y. — IBM System 3 disk users who don't want to bother with the simplistic coding normally required by RPG-II can get the same results and some interesting additional strengths for \$15/mo extra, through the Auto Report feature recently announced by IBM.

The Auto Report feature reduces the

time a programmer needs to spend planning and coding reports and provides a simplified method of specifying headings for each page of a report.

Beyond that, however, the feature, expected to be available in March 1972, provides a means of copying RPG-II source statements from a library into an RPG-II source program that is about to be compiled.

The Auto Report feature functions as a precompiler. It can accept specially formatted specifications, or conventional RPG-II coding, as well as the source code from the user library.

While the use of the Auto Report feature cuts down the programmers' time, it adds to the machine time needed to get the program up and running. In one example reported by IBM, 40 statements input to the Auto Report feature generated 100 RPG-II statements, which were then compiled in about 8 minutes. But 100 RPG-II statements manually coded would have taken only 5 minutes to process, IBM admitted.

GL System Works on T/S or Batch

PHOENIX — A consolidated general ledger system, providing both interactive and batch processing capabilities, has been developed by Western Data Sciences Inc. (WDS) for use on IBM 360/370, Burroughs B5500, or DEC PDP-10 CPUs.

The WDS package allows up to 50 divisions or subsidiaries to be processed on a fully consolidated basis with the parent company, or handled separately.

Data can be entered or retrieved from user terminals, in batch environment, or in a mixed processing mode.

Profit and loss statements can be generated by division and by corporation. Bal-

ance sheets and statements showing percentage of expense to income are also produced. Format of the reports can be modified through control cards interacting with a print control file.

Written in Fortran IV, the system requires 3.5K bytes of core and one disk pack when operating under DOS or OS/360.

It is priced at \$5,000 for the end-user, but lease plans are also available. Time-sharing networks can acquire rights to the package for \$1,250/yr plus a percentage of the profits generated by the package. WDS is at 5055 N. 12th St., 85014.

ISI's Credit Card Accounting
Reports Suspicious Activities

WARWICK, R.I. — A Credit Card Accounting System (Ccas) that provides a full range of automatic bank credit card accounting services is being offered by Information Sciences, Inc.

Ccas can handle "country club" or descriptive charge card billing for a number of affiliated banks as well as individual banks, according to a spokesman. The package also provides for the automatic reissuance of regular and photo identification plastic charge cards. A series of 35 Cobol programs, the system requires 65K bytes and costs \$25,000, or \$600/mo on a five-year lease. Prices include on-site installation and training. Information Sciences, Inc. is at 14 Jefferson Blvd., 02888.

Payables, Forecasts Combined

TAMPA, Fla. — A combination Accounts Payable/Financial Management System package from GTE Data Services Inc. provides IBM 360-370 users with control over disbursements and related accounting distributions.

The package performs all input validations, payables accounting, file maintenance and report preparation in one pass of the master file, the company said. It also provides cash requirements reporting complete with forecasting of future obligations.

The Cobol package requires 55K bytes of core and uses two permanent files and four working files, under either DOS or OS/360. It is available for \$13,000, including four man-days of support, from 5422 Bay Center Drive, 33609.

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Inventory Management-I

'Deadly Sins' Defeat Systems

By Richard T. Lilly

Special to Computerworld

"Oh ye of little faith, is your computerized Inventory System slowly going to Hell? Do not despair; absolution for any one of the Seven Deadly Sins is just around the corner."

Inventory systems are continuously being designed and implemented with great expectations of reducing dollar investment and/or increasing the level of customer service. Often these goals are never realized.

The main reason for failure is that the system is not complete. Users should be aware of the "Seven Deadly Sins of Omission" in an inventory management system.

The greatest weakness in most systems usually is in their handling of the balance-on-hand problem. The first four "sins" cause inaccurate control of balance-on-hand, which in turn causes the user to lose confidence in the system and therefore defeats its purpose. Three sins are discussed here.

The first sin, the lack of an adjustment date filter, is rather minor, but is easy to understand and, more important, easy to remedy.

Consider the following sequence of events:

- April 20 — a physical count shows 240 pieces in the storeroom while the computer record shows a balance of 260. The item's record is adjusted to 240 pieces.

- April 21 — an issue for 20 pieces is received in Data Processing dated 4/19 and processed through the system.

- Result — the physical count is 240 pieces but the items record is 220 and is in error, because in effect, the transaction was posted twice.

The cure for this is to retain the last date of adjustment within the item record and to reject any transaction that occurs prior to that date. The previous sequence of events changes:

- April 20 — a physical count shows 240 pieces in the storeroom while the computer record shows a balance of 260. The item's record is adjusted to 240 pieces 71-04-20.

- April 21 — an issue for 20 pieces is received (dated 4/19) and is rejected during the edit run since 71-04-19 is less than 71-04-20.

Rejected Transactions

Many systems sin by not providing any means of tracing rejected transactions. Every inventory system has an edit program that rejects transactions for many reasons. Some of the most common are:

- Item had no inventory master record
- Unit of measure was incorrect
- Date did not pass the adjustment filter
- Quantity was not within specific limits.

The problem here is that there is no positive control of these transactions once they have been rejected. Any rejection should at least suggest a correction, yet no formal procedure for error corrections exists. There must be some positive proof that the correction has been made.

As part of the edit procedure, rejects should be placed in a reject suspense file and a listing of all rejects must be made to include the total information of the transaction, the reasons for being rejected, the number of times the transaction has been through the edit procedure, and the reject control number, usually year, month, day and serial sequence.

Reject corrections are processed at the beginning of each edit run. After correction, each transaction is then re-edited as though it were new. Thus, no transaction can "slip through the cracks."

Processed Transactions

Just as some systems lose track of rejected transactions, many also sin by their inability to trace processed items.

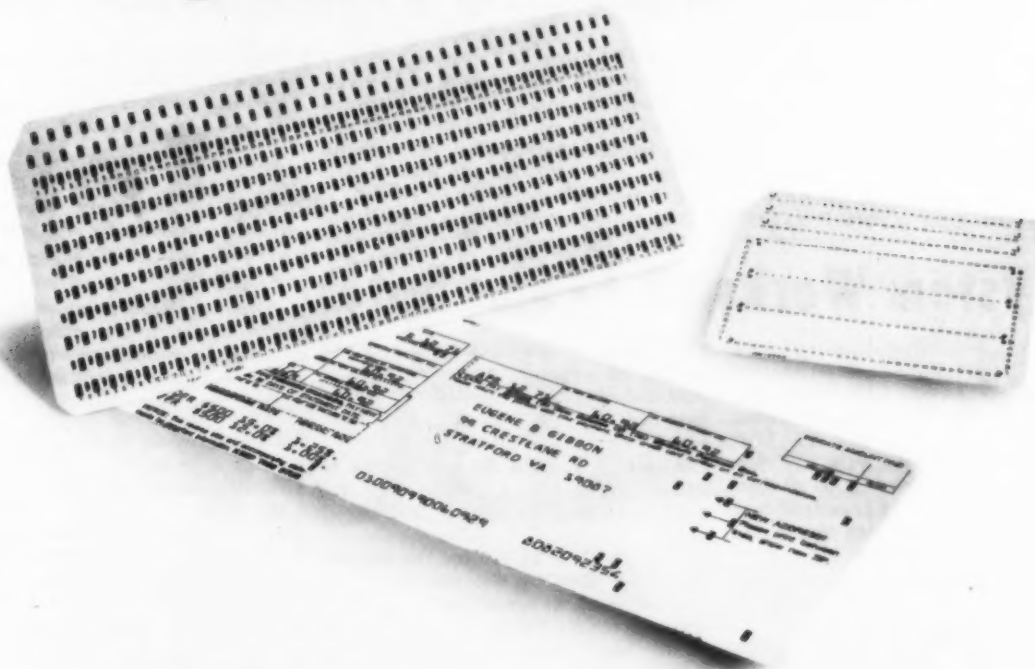
A major complaint of inventory control personnel is that once a transaction updates an item's status, either the time required to trace the transaction is prohibitive, or the transaction disappears completely. Thus, when the inventory record and physical counts are not identical and there is no audit trail information to show the reason, the system's credibility becomes less at each occurrence until the user simply bypasses the system by setting up his own manual subsystem.

To correct this, the user must be given the ability to trace at least 30 days of transactions through inquiry. An audit trail of all processed transactions must be chained to each item.

Avoiding these sins will go a long way towards insuring accurate control of balance-on-hand quantities, but there is more to a fully effective inventory system. In the second part of this series, other sins of omission by management will be discussed.

Richard T. Lilly is president of Manufacturing Management Sciences Inc., Burlington, Mass.

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For information on the new 8803, or any of our System/3-compatible peripherals, drop us a line. Bridge Data Products, Inc. 738 South 42nd Street, Philadelphia, Pa. 19104.

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December 8, 1971

Page 17

Bits and Pieces

Miniature Register Added To Point-of-Sale System

SUNNYVALE, Calif. — Transaction Systems has added a miniature hand-held portable electronic sales register to its Transaction Register point-of-sale equipment.

Used much as a sales book, the Mini-Register uses a wand to gather information for each sale such as employee number, merchandise codes and prices, and customer charge card data and transaction code. The data is then fed into the Transaction Register at high speed to complete the transaction.

Prices of the Mini-Register are not yet firm, but will be below the \$650 to \$950 charged by competitive systems for data gathering wands, the company said.

Future models of the Mini-Register will be much smaller and be able to record up to 50 transactions before unloading, the company added.

Transaction Systems, Inc. is at 725 San Aleso Ave., 94086.

Latest Selectric Typewriters Used In Holmes Tycom Terminal

POMPTON LAKES, N.J. — The IBM Selectric II is used in the latest Holmes Tycom Ascii device as a parallel Ascii-coded output device.

The user, the company said, can benefit from the improved features of the Selectric II which include express back space, dual 10/12 pitch, half spacing and Ribbon Pak.

The typewriter case contains all of the electronics to interface the device to most minis as well as most CRT terminals.

The Tycom device can be used with the new 833, 835, 873 and 875 Selectrics. Older models can also be used. Installation takes 30 minutes, the company said.

Selectric II versions complete with IBM models 833 and 835 are priced at \$2,085 and \$2,195 with delivery in 90 days from 750 Hamburg Turnpike.

Buffered Interface Connects IBM 1800 to Videojet Printer

HOUSTON — TC Systems, Inc. has developed a buffered interface that allows the A.B. Dick Videojet printer to be used with the IBM 1800.

Features of the IBM 1800-Videojet Printer Interface that includes a software package as well as the interface, include adjustable print format, variable character spacing, Ascii compatibility, and remote to computer or side by side operation. The noiseless printer can print at 250 char./sec.

The 1800 computer must be equipped with two digital inputs, one priority interrupt and one group of registers output, the company said.

The system, complete with printer, sells for \$12,000. Delivery is 60 days from 3303 S. Rice Ave., 77027.

3M Disk Pack is 5444-Compatible

ST. PAUL, Minn. — System/3 users will be able to get their 5444-compatible disk cartridges from the 3M Co. after the first of the year.

The Scotch brand 903 cartridges feature a "crashguard" coating, used on current Scotch disk packs and cartridges, that resists damage from head crashes or the inability of the read/write head to fly over the disk surface, according to the company.

The 903 cartridges will be available at a price of \$163.

Switchable LCS

Memory Connects to 360/50 or 65

By Frank Piasta
CW Correspondent

SAN FRANCISCO — United Air Lines (UAL) has installed what is thought to be the first bulk core memory that can be switched between a 360/50 and a 360/65 by the operator.

The System/6000 Large Core Store (LCS), from Data Products Corp., has resulted in more throughput and has enabled United to process its expanded workload as well as to offer additional services to its internal and external customers, the user said.

The IBM 2361, for which the Data Products unit is a lower-cost, faster replacement, can be ordered with optional shared storage which allows two computers simultaneous access. The switching of the memory from one to the other computer for exclusive use, however, is not available from IBM.

Independent manufacturers of bulk memory are capable of supplying the switching option, according to a source at one, but have had no customer requests yet to do so.

The performance gained by having the memory switchable from the 360/50 to the 360/65 relieved United of the need to upgrade its 360/50 to 65 speeds, according to Alan E. Peters, manager of computer service at UAL. The cost of upgrading, and also adding 256K core to the existing 65, would be over \$20,000/mo, Peters said.

The cost of the LCS is approximately \$6,000/mo on a two year lease, he added.

UAL formerly used the 360/65 primarily for batch operations, with the 360/50 serving on-line, real-time applications. Since the LCS has been installed, the large on-line applications have been moved to the 360/65 in order to free the 50 for batch jobs.

"This gives a completely different job mix that makes exact comparison difficult," Peters said. "But even with the additional on-line applications running on the 65, we are able to process 4,000 jobs in two weeks. This is 300 more than were

previously accommodated without on-line operations."

Peters said he noticed the difference from the moment they installed the LCS. "As many as 15 initiators have been used on the 360/65 with the LCS." Since on-line applications require large amounts of core, previously only one or two other jobs could be accommodated on the on-line system, he said.

With multiprogramming, about 200K is dedicated for the operating system, with up to 15 regions available for programming. The average number of regions used simultaneously is usually nine, three times the number of regions available in the past, which improves the schedule

and performance considerably, Peters explained.

The Data Products memory is capable of a cycle time of 2.5 μ sec when connected to the 360/50 and 1.8 μ sec when connected to the 360/65. In contrast the IBM 2361 has a cycle time of 8 μ sec.

The one-million byte LCS has a price of about \$200,000 or leases for about \$6,250/mo. The switch feature adds another \$10,000 to the purchase price or about \$465/mo to the lease price. Shared stored, compatible with the IBM feature, is available at a cost of \$15,000 or \$650/mo. The memory can be used jointly by two 360/50s, a 360/50 and 360/65, or two 360/65s.

Standard Register Terminals Punch, Print at Source of Data

DAYTON, Ohio — Two series of terminals from Standard Register Co. are intended for use in data collection and transmitting systems.

The LCT terminals will operate off-line as well as on-line and are said to be the only terminals being marketed that can provide both punched card and hard copy output at the source for delayed transmission, subsequent recording, and audit trail purposes.

The units can collect and record data at the source in both man and machine readable forms and transmit the data to a central data processing operation in 8-level Ascii code.

The LCT terminals are divided into two lines — the 100 series with three models and the 150 series with two models. All provide punched and printed output on Zipcard 80-col card forms, or on standard tabulating cards, and can transmit on-line to a computer.

The series 100 uses a separate power pack. The model 100 contains no keyboard, relying on tabulating cards and data stored internally in the terminal for input. Internal data might include shift

number, station number, date, etc.

The Model 110 adds a 10-bank keyboard as an input medium. The model 120 adds the badge reader as standard equipment to the features of the 110.

The 150 series machines have programmed instructions to the operator using 18 lighted panels. As many as four programs of up to 18 steps each can be stored.

Input to the 150 series can be through the 10-bank keyboard, tab cards, and internally stored data. A badge reader is optional and other digital input devices such as scales, clocks, etc., can be attached on special order. The badge reader is standard equipment on the 155 model, in addition to the input methods available on the 150.

Monthly rental prices of the LCT 100 series terminals range from \$132 to \$165. Purchase prices vary from \$3,200 to \$4,050. Annual maintenance charge is from \$274 to \$326.

The LCT150 models range in lease price from \$169 to \$179; purchase prices from \$4,100 to \$4,350. The annual charge for maintenance is from \$344 to \$366.

Corpak-11 Options for PDP-11 Add Interleave, Reduce Cycle

LOS ANGELES, Calif. — Two options available for its CorpPak-11 minicomputer add-on memory package from Information Control Corp. are designed to reduce cycle time in the DEC PDP-11.

One option allow users to add an independently supplied core memory with interleave. The other option reduces the CorpPak-11 cycle time from 1.2 μ sec to 950 nsec.

A combination of the two, according to the company, will reduce memory cycle time to 490 nsec, said to be useful to users who are core or throughput limited.

CorpPak-11 memory packages are available in 4K increments and offer up to 128K words of total memory and up to 124K words of expansion memory, starting from a minimum of 4K. Cost is about 20% less than memory supplied by the mini manufacturer, ICC said.

The interleaving can be added to existing CorpPak-11 memories at the factory at no charge. Field installation will cost the user about \$300. The high-speed option can be added to a CorpPak-11 only at the factory and will increase the cost of an 8K memory from \$4,850 to \$5,300.

Information Control Corp. is at 9610 Bellanca Ave.



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Prepares Data for KOM-80, -90

HP 2022A Reformats Mag Tapes Off-Line

PALO ALTO, Calif. — A mini-based system from Hewlett-Packard is designed to reformat computer tapes for direct input to peripheral devices.

The Magnetic Tape Reformatting System Model 2022A gives users the flexibility of software reformatting without tying up their large computers for preparing tapes for such devices as off-line print stations, COM units, plotters, communications devices and tape drives.

The system is available in two versions, the Model 2022A which includes basic hardware and software that can be adapted to almost any application through additional hardware and software supplied by the user; and the 2022A Option 101, a complete system designed to prepare input for the Kodak KOM-80 and KOM-90 microfilmers.

The basic model 2022A includes a 45in./sec digital mag-

netic tape transport, a 4K 16-bit word minicomputer with two DMA channels, interface hardware and system software.

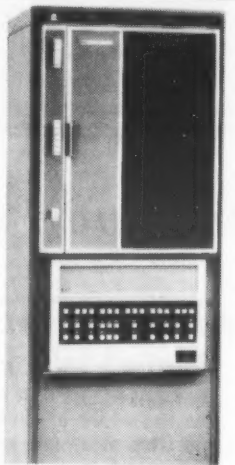
The tape drive reads 7-track NRZI tapes with 200, 556, or 800 char./in., 9-track NRZI tapes with 200 or 800 char./in., or 9-track phase-encoded tape with 1,600 char./in.

The Option 101 consists of the basic Model 2022A with an interface for the KOM-80 and KOM-90 units and a card reader

for the mark sense or punched cards used to control the system.

Programs to reformat the input tapes are included. These allow the microfilmers to accept native mode tapes as well as IBM 360 line printer tapes on ASA or machine code, HP said.

The Basic Model 2022A system is priced at \$28,800. With Option 101 for the Kodak microfilmers the price is \$35,000. First deliveries are scheduled for June, 1972.



HP 2022A Reformatter

NCR Scanner Reads Tapes

DAYTON, Ohio — A low cost optical scanner from National Cash Register Co. reads cash register, adding machine and accounting machine tapes at 7.2 in./sec.

The NCR 420-3 is available either as a stand-alone device or, coupled with the NCR 739-102 mag tape drive, as an optical-to-magnetic tape conversion system.

The 420-3 is intended for applications in which high speed and throughput volume are not required and price is a key factor, NCR said.

The 420-3 is priced at \$55,760 and can be rented for \$1,400/mo on a three-year contract. A complete conversion system, including the 739-102 tape drive is priced at \$73,100 or \$1,550/mo.

Wabash Tester OKs 3336 Packs

PHOENIX — The Model 336 disk pack tester from Wabash Computer Corp. tests single IBM 3336 and compatible disks either manually or automatically.

Design of the Model 336 combines features of Wabash's present disk tester line with new statistical test functions developed for the IBM 3336 disks, according to Wabash. The device provides complete disk test, with test results immediately available on a visual display. Hard copy of the test results is also provided.

Prices of the Model 336 start at \$26,500, with delivery in 90 days from 10202 N. 19th Ave., 85021.

3 Tape Accessories Cut Editing Cost

HUNTINGTON, N.Y. — Three portable, hand-operated devices from Computer Accessories, Inc. are designed to cut the cost and improve the efficiency of editing paper and Mylar punched tapes.

The CAC Splicing Table uses pressure sensitive or gummed tape patches.

The 302PS and 303PS tape editing Punch/Splicers use a hand held stylus to punch tape as well as splice it.

The splicing table is priced at \$30, 302PS at \$83.50 and 303PS at \$64.50. Delivery is from stock from 211 New York Ave., 11743.

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Dual Speed Modems Planned

SANTA CLARA, Calif. — Dual speed modems that will allow simultaneous slow-speed data input to a CPU with high speed output will soon expand the communications capabilities of users.

The Memorex 1240 terminal will have such a dual speed transmission feature that will allow 150 char./sec input with a 1,200 char./sec output.

The Memorex terminal will include the dual speed capability with the installation of a special modem that will automatically turn around a data line and also switch data rates. The Memorex modem will be designated 1222 for use with the 1240 terminal. It will be priced at \$900 and lease for \$20/mo.

A similar dual speed modem, the 1275/1280 is being introduced by the Vadic Corp. It is a stand-alone unit that also operates full duplex and is EIA RS-232 compatible. It is priced at "less than \$500" on a 60-day delivery schedule from 916 Commercial St., Palo Alto, Calif., 94303.

IBM Adds 2,400, 7,200 Bit/Sec Modems With Manual Equalization Capabilities

By Ronald A. Frank

Of the CW Staff

WHITE PLAINS, N.Y. — IBM has announced two synchronous data modems which operate at 1,200 to 7,200 bit/sec at prices generally above those available from Bell or independent suppliers.

Two modems, the 3872 and 3875 were introduced, each with a dual speed capability. The 3872 operates at 2,400 bit/sec with 1,200 bit/sec for back-up, while the 3875 handles 7,200

bit/sec with 3,600 bit/sec back-up. IBM previously supplied a 4,800 bit/sec modem, designated the 4872.

Both modems include equaliza-

quired level while the 3875 has five adjustable potentiometers for manual equalization.

Test Features

The higher speed unit has a multi-point equalization capability that can be used without voice coordination, an IBM spokesman said. Local and end-to-end test features are included in both modems.

The 3872 can operate on both private and dial-up lines while the 3875 is designed for private line use. Neither device has a reverse channel capability. An optional call/originate feature is available on the lower speed model.

The 3872 ranges from \$2,975 to \$3,570 or \$85 to \$100/mo. A 2,400 bit/sec modem from Milgo costs about \$66/mo while the Bell 201B rents for about \$72/mo.

The 3875 is priced at \$8,400 to \$11,375 or \$240 to \$315/mo. A comparable 7,200 bit/sec modem from Codex costs \$275/mo while the Bell 203 costs about \$200/mo.

The Codex modem includes automatic adaptive equalization compared with the manual equalization available on the IBM unit.

The 3872 is scheduled for first delivery in August 1972 while the 3875 will be available the following month. Overseas versions will be available through IBM World Trade.

Communications

tion capabilities that can be adjusted by the operator. The 3872 features switches which can equalize a line to the re-



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For example, we have six Sigma mainframes and a complete line of peripherals, with capabilities ranging from simple data processing to large scale multi-mode operations that include batch, time-sharing and real-time processing,

all at the same time. But to meet your needs we're ready to add special hardware, or modify any of our six Sigmas.

Our standard software includes five full operating systems, a dozen languages, and hundreds of special purpose programs. Enough variety to satisfy everyone. But you're not everyone. To satisfy you we're ready to create a customized package.

The point is, we're going to look at your needs from a total system point of view: What will it take to get the job done? Then we'll tailor our products and service to fit.

We figure the more our computers fit your business, the more business you'll see fit to bring our way.

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Auto Call Unit Handles Bell, TWX Messages

MAHWAH, N.J. — Five to 20 communications lines can be operated unattended under computer control by an automatic calling and answering unit (Acau) developed by Teleprocessing Industries, Inc.

Featuring printed-circuit-card design, the Acau allows computers to answer and make calls automatically over the Bell System DDD network via Data-Phone, and the Western Union TWX network.

Modems Built-in

After completion of the call the unit disconnects automatically. It has built-in modems and can be connected directly to communications lines, when permitted, or to a Data Access Arrangement (DAA).

The Acau performs both dial-pulse and Touch-Tone dialing. The unit is equivalent to the Bell System 801/811/Data Set Combination, the company said.

Typical installations for an Acau would be where:

- A central computer collects data from many offices frequently to assemble sales results and reports
- Remote offices query supply centers frequently for inventory information
- A time-sharing service provides remote batch processing to many terminal users.

Price for a 5-line unit is under \$10,000. Deliveries are scheduled to begin the first quarter of 1972 from 82 McKee Drive, 07430.

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Two Year Study

Bill Seeks DP Scheduling of Rail Cars

WASHINGTON, D.C. — "Advanced computer and communications techniques" would be used to help the nation's railroads ease one of their major problems, the scheduling and control of rolling stock, under a bill introduced recently in the U.S. Senate.

Senate Bill 2841 introduced by Sen. Warren Magnuson (D-Wash.) would authorize the Secretary of Transportation and the Interstate Commerce Commission to undertake a two year study of "the information, function and procedures necessary to provide efficient and expeditious car service on a national basis."

The proposed act is part of a program "to insure the existence of a safe, efficient and economic surface transportation system," according to James M. Beggs acting secretary of transportation. Under the study, for which \$35 million would be appropri-

ated, the Transportation Department would consider "the need for timely and accurate information regarding the location and movement of rolling stock on a nationwide basis."

In addition, the study would define the "requirements and technological standards necessary to insure the availability to each participating railroad of the advantages" to be obtained from such a national system.

The study would also define the standards necessary to insure the flow of car service orders from a national system to rolling stock scheduling and control

systems of individual railroads and the compliance of such railroads with the car service orders.

Another aspect of the study would be the definition of "the uniform data and other technological requirements that must be contained in the rolling stock scheduling and control systems of individual railroads to permit efficient linkage of such systems with any national system."

Besides studying the economic, safety and service benefits of the national system, the study would also look at the potential for private financing of a national system, the bill states.

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THE COMPUTER CARAVAN

It's Coming.

computer industry

December 8, 1971

a Computerworld news section about the nation's fastest growing industry

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CI Notes

New Suit vs. IBM Filed

SAN FRANCISCO — A new antitrust suit against IBM has been filed here by Symbolic Control Inc. The suit said Symbolic's business has been damaged by more than \$1 million and asks unspecified treble damages.

The suit charges IBM attempted to monopolize the computer portion of numerically controlled machine tools by selling them with "bundled" software. Symbolic makes a program for the machine tool industry.

Besides damages, the suit asks that IBM's single price system be set aside. An IBM spokesman said: "We believe there is no reasonable basis for this suit."

Consolidated Gets Backing

TORONTO — Consolidated Computer Ltd. will be in business for at least another six weeks due to a new infusion of financing.

The backing came from the Ontario Development Corp., Ottawa's General Adjustment Assistance Board and International Computer Ltd. (ICL), which has been dicker with the firm over a possible merger.

ICL will examine Consolidated's books during the period and if it likes what it sees it will take a share of the equity of Consolidated. However, sources said the majority interest in the firm would remain in Canadian hands.

Bankruptcies Move Up Again

CHICAGO — Bankruptcy petitions rose once again in fiscal 1971, according to Commerce Clearing House.

Overall, the 1971 total of 201,352 case filings marked a 3.6% increase from the previous year. The figure was 6,977 short of the all-time high of 208,329 recorded four years ago. The 1967 figure had marked the fifteenth straight year of increase. The 201,352 cases filed marked an increase of 18,922 from the number closed in fiscal 1970.

Supershorts

The Systematics/Magne-Head Division of General Instrument Corp. has announced a 20% price reduction on its Discstor 500 series mass memory systems.

Tektronix, Inc. has awarded a "substantial" contract to Sykes Data-tronics, Inc. for Sykes' cassette tape controller, Model 2120, with a custom interface designed to operate with the new Tektronix Model 4010 graphic display terminal.

Pacific Micronetics, Inc. has signed a blanket OEM purchase agreement with Singer-Link for an unspecified quantity of Fastrack Series 100 fixed head-per-track disk memory systems. The delivery of the first unit, Fastrack I, Model 241, is scheduled for February.

Inforex of Canada, Ltd. has been incorporated under the laws of Ontario as a wholly-owned subsidiary of Inforex, Inc., to handle sales and provide services to present and future Canadian customers.

\$130 Million Questions

Conversion Problems Facing Univac

By E. Drake Lundell Jr.

CW Computer Industry Editor

NEW YORK — The \$130 million question now facing Univac will be how well it can get RCA users to convert to the Univac 9000 and 1100 series computers as their RCA systems become obsolete over the next few years.

Univac became number 2 in the computer industry with between 9% and 10% of the machines installed when it acquired the RCA computer base [CW, Dec. 1]. It will pay at least \$70 million for that base, but the price tag could rise by \$30 million to \$60 million over the next five years, depending on future revenues.

Another major question facing Univac will be how it will fulfill the orders RCA had in hand in the U.S., Canada, and Mexico, and the answer to this question could affect RCA significantly over the next few years.

To date, Univac has avoided taking IBM on in a head-on battle in the market place — at least since the early days of the computer business when it lost its initial lead to IBM.

The acquisition of the RCA base, which is largely made up of Spectra series machines, puts it squarely in competition with the industry leader, however, and will force the now number 2 firm into more aggressive competition.

At the same time, it is unlikely Univac will go all out in the same manner that RCA tried unsuccessfully over the past few years. Univac does not seem interested in acquiring the marketing management that RCA had brought in from IBM to beef up its computer operations.

It is clearly Univac's position to try to get present RCA users to convert to Univac equipment — and not to continue development of computer systems along

the lines followed by RCA.

Immediately, however, the net effect of the move should be beneficial to Univac, and the firm expects to make a "profit" from the acquisition during the first year.

It is likely the profit will materialize. It has been estimated the current RCA customer base — about 1,000 machines — contributes rental revenues at a rate of about \$12 million a month or \$144 million a year.

Univac officials said while they expected to make money from the acquisition during the first year, they did not expect it to be a major windfall initially. But they did indicate the acquired customer base would be a major contributor to future profits of the firm.

Manufacturing Question

A major question remains: "Who will manufacture the systems that were ordered before RCA discontinued its computer operations?"

In the deal, Univac promised to be responsible for all unfilled RCA orders in the U.S., Canada, and Mexico. At the same time, RCA still has a large order — 40 systems — from Siemens that it has to fill.

The Univac strategy will probably be to try to get users that have orders for RCA equipment to convert to Univac machines now instead of waiting several years to make the move over to Univac equipment.

But it seems that there will be at least several large shops that will not want to convert at present and will want delivery of the RCA computers they have on order.

Neither firm would say last week what will be done with these customers, but it appears that RCA will manufacture the machines for Univac — at least until present unfilled orders are filled. RCA will also manufacture the machines for Siemens, unless someone comes along to purchase RCA's manufacturing capability.

At present, the only firm still officially in the race for any portion of the RCA business is Mohawk Data Systems, and it appears they are only interested in peripheral operations now that their bid for the entire operation has been thwarted.

At this date, it appears RCA will still be in the computer manufacturing business — acting as an OEM supplier to both Univac and Siemens.

Federal Computer Use Growing; IBM's Market Share Shrinking

WASHINGTON, D.C. — The number of computers in use in the Federal Government has increased by 12.5% to 5,961 in the fiscal year ended June 30 from 5,277 units at the end of the previous fiscal year.

IBM is still the largest single vendor, with 1,428 installations, although its percentage of installations fell from 26.4% to 23.9% during the period, according to the annual computer census published by the Federal Supply Service of the General Services Administration. Last year IBM accounted for 1,397 installations.

The census, which does not count analog or digital computers built or modified to special government design, shows Univac continued in second place in the government market with 1,053 systems installed or 17.6% of the total.

Digital Equipment Corp. is third in terms of number of units installed with 710 systems, or 13.5% of the market. Fourth is Honeywell, 465 systems, followed by Control Data, 459, National Cash Register, 298, and Xerox Data Systems, 283. RCA had 171 systems installed and Burroughs accounted for 208.

Special Management Category

"The continuing increase in the use of computers in new data processing functions and in applications other than in the general management classification is represented by the fact that 640 of the total increase of 684 computers is in the special management category," the report states.

This category includes applications such as laboratory instrumentation, communications control, process control, and the use of minicomputers as remote input control devices for larger systems, the report continues.

This increase in the use of computers in new applications "is borne out by the distribution of this increase by supplier," the report states, noting that Digital Equipment Corp. accounted for 30% of the increase and Varian Data Machines, 6%.

The portion of the inventory owned by the government also showed a jump in the past year, going from 64% in 1970 to over 72% in 1971, the report indicates. This reflects increases in the use of special systems and minis that are generally avail-

able only on a purchase basis and the government's continuing program to convert leased equipment to purchased, the report states.

The major using agency is the Air Force, which has 1,271 of the present installations. The Navy is second with 1,021 systems, followed by the Atomic Energy Commission, 954, the Army, 949, and Nasa, 812 systems.

Other major users include the Department of Transportation, 149, the Defense Supply Agency, 128, the Commerce Department, 99, the Treasury Department, 90, and the Department of Health, Education and Welfare, 88 systems installed. The report, which contains breakdowns of the number of computers both by manufacturer and agency with installation addresses, is available for \$3.25 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20401.

In addition, the data base from which the inventory is drawn is available on magnetic tape at a price of \$100 from the ADP Management Information System Division, Office of Automated Data Management Services, Federal Supply Service, General Services Administration, Washington, D.C. 20406.

60 Firms Plan Russian Exhibit

MOSCOW, USSR — More than 60 firms have expressed interest in an exhibition of U.S. computers and peripheral equipment scheduled for this city next May.

American firms will display their hardware from May 15-24 in what is billed as the first exhibit of its type in an Eastern bloc country by the organizer, International Media and Exhibits.

Among those expressing an interest in the exhibition are Digital Equipment Corp., Honeywell Information Systems, Univac, Sycor, Telex International, Burroughs, and Control Data.

General Computer Systems, Applied Digital Data Systems, Potter Instrument, Nortronics, Tektronix, and Cincinnati Milicron have also indicated interest.

Univac and Cincinnati Milicron are still studying the show, according to spokesmen for the firms. Potter Instrument

plans to show its low-speed tape drives and low-speed paper tape punch, both OEM products, a spokesman said.

Potter is hopeful the exhibit will lead to sales but admits much depends on American government approval. A Digital Equipment Corp. spokesman said his firm plans to show its PDP-8 minicomputer line in hopes of developing a market in the Soviet Union.

The International Media and Exhibits spokesman explained it is first necessary to have Russian approval before a firm can take part in the exhibition, which accounts for the long lead time for entries, a period that ends Jan. 31.

The firm specializes in exhibitions of U.S. equipment in eastern European countries and said the computer exhibit was organized with full knowledge of the U.S. Department of Commerce.

DP Industry Consolidation**Four Japanese Firms Announce Computer Tie-Ups**

Special to Computerworld
From Dempa Publications, Japan

TOKYO—Four of the six Japanese computer makers have reached final agreements on tie-ups in a move to cope with liberalization of foreign capital investment in three years [CW, Nov. 17].

Nippon Electric Co. will tie up with Tokyo Shibaura Electric Co., and Oki Electric Industry Co. with Mitsubishi Electric Corp.

With the agreements, the domestic Japanese computer industry has been regrouped into three firms through cooperation in joint development, production and marketing of new computer products. The two largest computer makers—Fujitsu and Hitachi—signed a similar cooperation agreement in October.

Nippon Electric and Toshiba will jointly develop and produce new types of computers that could compete with IBM's latest models. The units will be marketed

under each maker's own name, except for special lines such as computers for educational uses. The two lines will also jointly produce each other's software and peripheral and terminal equipment already developed. Unified marketing networks are being planned.

Oki and Mitsubishi have agreed to jointly develop new types of general-purpose computers, equipped with message switching and process control equipment.

The agreement also calls for Mitsubishi to acquire an interest in Oki-Univac Kaisha, a joint venture by Oki and Sperry Rand Corp. in order to increase its DP market share.

At present Oki owns a 51% interest and the U.S. firm 49% in Oki-Univac.

Oki and Mitsubishi have already purchased one million shares of each other's stock to strengthen their cooperative rela-

tions in the computer area.

As of March 1971 the Fujitsu-Hitachi group had a market share of installed equipment in Japan of 30.8%, the Nippon

Electric-Toshiba group, 19%, and the Oki-Mitsubishi-Univac group, 15%. Foreign makers, with IBM holding 28.2%, account for the remainder.

Computer Sciences Signs OTB Pact, Despite Investigations

NEW YORK—Despite many failures of the system, the Off Track Betting Corp. (OTB) here has decided to stick with the Computer Sciences Corp. (CSC) computer system, but at the same time the award is being investigated by the New York District Attorney's office.

OTB has signed a contract with CSC for operation of the system through July 1974, but will also allow Control Data

Corp. to provide backup service through its Ticketron system at each of the betting parlors in the system.

The investigation by District Attorney Frank Hogan's office is to determine if "any high city officials were in a position to profit financially or otherwise" from the award of the system to CSC, according to the *New York Post*.

For the past year, CSC has been operating the system under a letter of intent from OTB and has run into many problems and delays with the system.

'Still Evaluating'

While the contract has now been awarded to the firm, "OTB is still evaluating CSC's submissions and demonstrations to meet all of the specifications for reliability and redundancy which OTB requires," according to Howard J. Samuels, OTB president.

"The system," he added, "in the last five weeks has achieved greater stability and redundancy" than was evidenced earlier.

Under the contract CSC will receive around 1% of the betting handle with a minimum of \$4.3 million and maximum of \$6.3 million over the three-year contract period. The contract still needs the approval of the New York Board of Estimates.

Under the pact, CSC will be the sole vendor if it can meet the OTB standards for reliability and performance, but at the same time OTB awarded a contract to Control Data that will allow OTB to shift service to the CDC terminals if the CSC system goes down.

Investigation Outlined

OTB "will cooperate fully" with the planned investigation by the District Attorney's office, a spokesman said, and CSC sources said they knew of "nothing improper" that would be cause for an investigation.

In addition to the New York investigation, there are reports that the Security and Exchange Commission is also looking into the heavy market activity of CSC stock around the time the OTB letter of intent was awarded.

CSC dubbed the reports of an SEC investigation "routine."

Control Data-CII Announce Agreement for Common Mainframe Developments

MINNEAPOLIS, Minn.—Control Data Corp. and Compagnie Internationale Pour L'Informatique (CII) have entered into a preliminary agreement to develop a common computer mainframe to be utilized in their respective product lines.

The agreement is expected to be finalized sometime in 1972. The computer planned for development will be in the medium system class.

The two companies have been engaged in other cooperative programs during the past two years involving areas of fundamental research and peripheral product technology.

CII is a leading computer manufacturer in France and markets a line of small to medium computers in Europe.

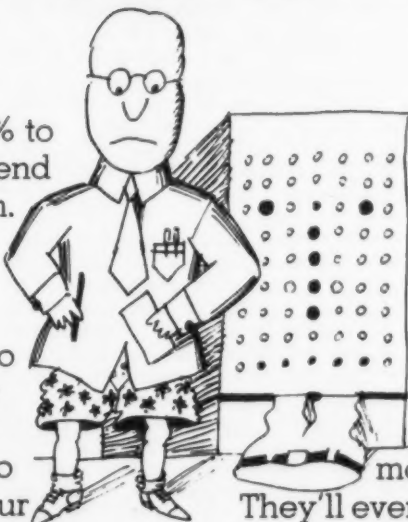
It's a hell of a note.

Most 360 users waste 20% to 50% of the money they spend on core. Month after month. Year after year. And that, by anyone's definition, is one hell of a note.

Fact: CorPak costs 20% to 50% less than the memory that came with your CPU. And you're perfectly free to use it, whether you rent your 360 or own it. Some dp managers don't know that.

CorPak is plug-to-plug compatible with most 360's: Mod 22, 30, 40 and 50. It's built to military specifications, and it will match or beat the environmental specs on your CPU.

Reprogramming isn't necessary, if you use CorPak for same-size replacement of your present memory. If you increase core size, CorPak requires no more reprogramming than the



other kind of memory. And it can give you up to twice the core that the mainframe manufacturer is willing to provide.

Factory teams install CorPak in as little as 2 hours and seldom more than 16, for even the most complex installation.

They'll even do it over a weekend. The Sorbus organization services CorPak through 129 nationwide centers. They can have a man at your site within two hours of the time you call.

We want to show you how much you can save with CorPak. Call us collect. We'll set up an appointment at your convenience.

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The DYNAPROBE-8000. A totally new and flexible analytical tool from COMRESS combining unique hardware concepts with a revolutionary approach to measurement software.

Hardware monitors have always allowed you to measure hardware-oriented data. Such as CPU Active Channel Busy, and Seek Time. But that's not always enough. How about the logical elements?

The DYNAPROBE-8000 allows you to perform file structure analysis, trace or map program structures or individual routines. Automatically. Even in an MVT or Paged environment.

The DYNAPROBE-8000 features a 16-bit minicomputer to select and buffer measured data. And a data controller with 48 Mini-probes™. And a 600-hub removable plugboard. Optional tape handlers give you a choice of 556, 800 or 1600 bpi and 7- or 9-level IBM-compatible recording.

Multiplexing capability allows you to configure the system to fit your specific needs for virtually any set of analyses.


Standardized extraction software modules allow you to convert in-line data from a variety of system functions. Unique DYNAPAR software analysis systems are part of the package.

If the DYNAPROBE-8000 seems a bit advanced for your needs, we have a full line of other precision-engineered hardware monitoring

systems (for purchase, short-term or long-term lease.) All are offered with a *guaranteed* trade-in should your needs change. All are backed with the COMRESS-developed *System Measurement Guides*. Along with full application support from strategically-located offices throughout the world.

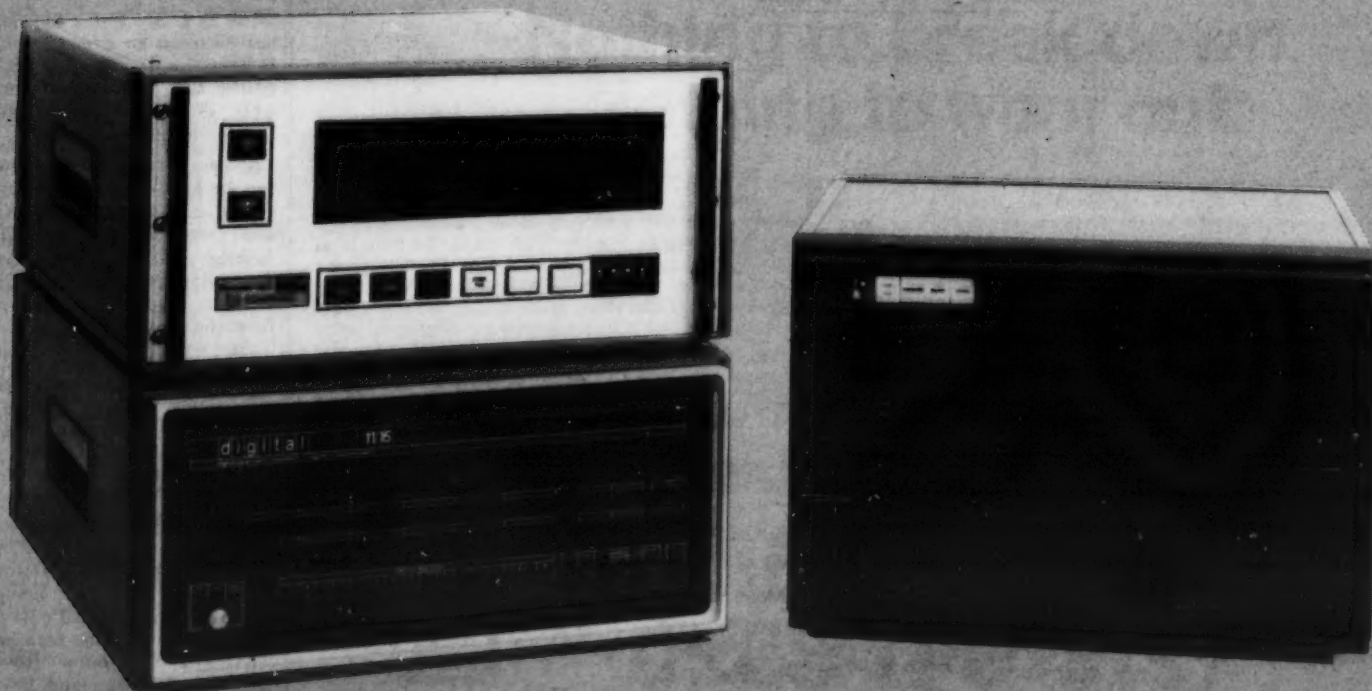
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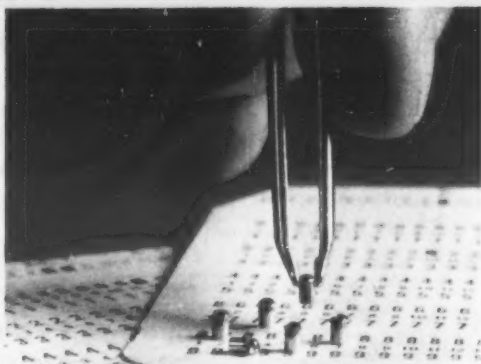
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**IBM Uses LEDs**

Light-emitting diodes (LEDs) have replaced incandescent lamps in the IBM 3525 card punch developed at IBM's General Systems Division laboratory in Rochester, Minn. The light-emitting diodes used in the 3525 function as one-half of a switch that detects the presence of a punched card. Use of LEDs in the 3525 marks the first use of the technology for switching purposes in IBM equipment.

Telex, Itel Settle Litigation Over Double Density Disk Rights

TULSA, Okla. — Telex Corp. and Itel Corp. have settled litigation over marketing rights to a double density disk storage system manufactured by Information Storage Systems, Inc., a subsidiary of Itel. Telex will continue to market the device exclusively.

Telex has been the exclusive marketing agent for Information Storage Systems' IBM 2340 disk system replacement, under an agreement made before ISS became an Itel subsidiary, according to a Telex spokesman. Telex claimed it had similar rights to a new double-density disk system designed by ISS.

Telex claimed this right because it said the new disk system was an improvement on the old and not a new product, according to the spokesman. Itel disagreed, and the matter was taken to court, where Telex secured a temporary injunction against Itel.

Itel appealed to the Oklahoma Supreme Court but later settled the matter, agreeing to give Telex the marketing rights.

The Telex spokesman said his company plans to develop and market its own double-density disk in the near future.

Informatics Lands Drug Information Award From HEW

ROCKVILLE, Md. — Informatics Inc. will develop new DP systems to support national drug-related research programs under two new contracts, totaling \$293,000 from the Department of Health, Education and Welfare.

The larger of the two pacts, which are with the firm's Systems and Services Co. here, is valued at \$193,000 and calls for the design of interim and long-range computer systems for the National Center for Toxicological Research, established by President Nixon in January.

The second award is for design of a system to replace the manual procedures relating to drug status information for the

Contracts

Food and Drug Administration. The system will provide information on the approval cycles of drugs, drug applications, how many drugs are undergoing tests and test results.

Other Contracts

The Alston Division of Conrac Corp. has landed an award from Western Electric Co. for two computer-based telephone traffic data system installations.

Computing and Software Inc. will assist selected state employment service agencies with administration of the Work Incentive Program under a \$2 million contract with the Department of Labor.

GTE Sylvania has won a \$3 million contract from the U.S. Army Security Agency for the development of a signal processing system.

The National Broadcasting Co. has ordered more than \$100,000 worth of data communication equipment from Computer Optics, including seven CRT terminals and distribution, switching, and data storage units. The equipment will be used to facilitate TV network news coverage of the 1972 elections.

The U.S. Air Force Systems Command has awarded an over \$1 million pact to Informatics Inc. to extract specific scientific and technical information from a wide variety of eastern European and Russian language literature.

A Nasa contract for software support for the Multi-Satellite Operations Control Center has been won by Wolf Research and Development Corp. The firm will develop and implement a Control Center Processing Plan for each Earth orbiting satellite requiring control and support from the center.

A contract calling for the improvement of the Attack Carrier Integrated Operations Intelligence Center has been awarded by the Naval Air Systems Command to PRC Information Sciences Co. The company will develop new software for a more flexible system incorporating photographic interpretation, evaluation, storage and retrieval, and mission planning under one disk operating system.

Raytheon Co. is being issued a \$1,463,463 negotiated cost-plus-fixed-fee contract for systems management of the ANIUYK-7 computer from the Naval Ship Systems Command.

Cambridge Memories is delivering more and more 360/CORE.

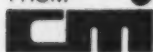
Why?

360/CORE is the new add-on and replacement main memory for System/360. Up to 40% less costly. Installs in less than an hour. Highly reliable, with over 100,000 operating hours. Full maintenance throughout U.S. And it comes in a variety of models, including:

Model 30	To 131K
Model 40	To 448K
Model 50	To 1024K

360/CORE

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Computer Test Corp. Unveils Memory Production Test Array

CHERRY HILL, N.J. — A new memory array test system for production line testing has been introduced by Computer Test Corp. (CTC), a subsidiary of Computest Corp.

Specifically designed for production testing of a single type or a limited number of individual types of memory core arrays, the new system can be set up to test 2D, 2½D, or 3D memories.

The M-250 Memory Array Test System can be used in test production runs of similar memory products. To test three 2½D memories, all sharing the same test program and storage pattern requirements, with capacities of 16K by 18 bits and 16K by 32 bits, the only change necessary for each memory would be the Y axis scan limits, the firm said. Automatic sequencing in the M-250 which cycles through zeroes, ones, and worst-case pattern and complement eliminates manual test sequencing.

The M-250 provides the operator with a choice of seven test programs: core test, all ones, all zeroes, worst-case pattern,

New OEM Products

worst-case pattern complement and bit complement tests on the two worst-case patterns.

The M-250 is available for delivery in 90 days at a price ranging from \$30,000 to \$55,000. The firm is at Three Computer Drive, 08034.

ROMs Bow at Harris Semiconductor
MELBOURNE, Fla. — A series of 1K bit ROM circuits from Harris Semiconductor Division of Harris Intertype Corp. includes mask-programmable and field-programmable devices.

The series includes the HROM-1024B mask-programmed circuit, the HPROM-1024 field-programmable circuit with a tri-state output, and the HPROM-1024A field-programmable unit with open collector output. The 1024A and 1024B are said to be identical except for the method of programming. All three devices are compatible with other available 1K bipolar ROMs, the company said.

In quantities of 100, prices for programmable ROMs are \$55 each; for custom-programmed devices, \$33 each.

Versatec Adds Capability

CUPERTINO, Calif. — Upper and lower case capability has been added to its non-impact Matrix printers by Versatec with the availability of 96-character ROMs.

The ROMs operate from Ascii input codes. The 5 by 7 dot F8-1 is designed for use with the Matrix 300- and 600 line/min printers, as well as the 100A and 200A combination printer/plotters and sells for \$425. The 7 by 9 dot Model F11-1 sells for \$550 and is designed for use with the Matrix 1300 printer and 1100A combination printer/plotter.

Matrix units with the new ROMs are available for 60-day delivery from 10100 Bubb Road, 95014.

Applied Heads Write In-Line Tracks

GOLETA, Calif. — A series of magnetic heads from Applied Magnetics Corp. writes 100 in-line tracks on 1-in. tape with internal shielding that limits inter-track cross talk to within 10%.

Track width is .008 in. spaced on .010 in. centers. Approximate external dimensions are 1.5 in. high by 1.2 in. wide by 1.0 in. deep. Typical head inductance is 1.2 mH. The head is capable of writing to a linear packing density of 5,000 flux reversal/in.

Applied Magnetics is at 75 Robin Hill Road, 93017.

Mostek Introduces Chip

CARROLLTON, Texas — The Mostek Corp. has developed a 10-digit version of its 12-digit calculator-on-a-chip that is in use by a Japanese calculator maker.

The MK 5010 P contains the equivalent of over 2,100 transistors, 360 logic gates and 160 flip-flops in a chip 180 mils square. The components act in random logic fashion, allowing the circuit to carry out all the standard arithmetic functions — add, subtract, multiply and divide.

Display of a numeric entry or the resultant calculation is provided on a multiplexed basis. The circuit provides 1 to 10 output for selecting the digit to be displayed.

Price of the circuit is under \$15 in large production quantities from 1400 Upfield Drive, 75006.

YEAR END "EXTRA" FOR ADVERTISERS

Computerworld's Year-End Review Supplement coming in the Dec. 29 — Jan. 5 combined issue.

Advertising closing date is Dec. 17.

This Supplement "sums up" the top 10 trends of 1971 in terms of their impact on the computer industry.

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Communications . . . Security . . .

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A new concept in durable line printers and plotters.



Nothing to break down. Nothing to wear out.

The Potter LP 3000 series printers have been designed for maximum reliability. The mechanical simplicity of these units lets them operate day after day without maintenance. For mini-computer data systems or terminals, the Potter LP 3000 and LP 3300 offer the lowest cost, high performance line printers available. These two outstanding products feature a unique printing principle which provides clear, sharp multiple copy printout.

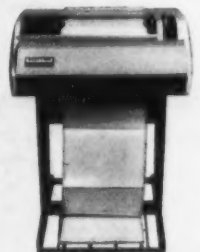
LP 3000 — Prints 135 lines per minute with 64 characters on 132 columns. Its sharp, clear multiple copy printout makes it ideal for mini-computer or data terminal use. It is available now at just \$3,385 each in quantity 100.

LP 3300 — Same rugged design and simplicity as the LP 3000 but operates at a speed of 300 lpm. Well suited for applications requiring medium speeds. The price for this unit is just \$4,220 in quantity 100.

The LP 3000 and LP 3300 are also available in printer/

plotter versions, the LP 3050 and LP 3350 respectively. These graphics versions of the Potter Printers perform high resolution digital x-y plotting under cpu control. The LP 3050 operates at a speed of 15,000 points per second. The LP 3350 plots at a speed of 32,000 points per second. Both of these units can print and plot simultaneously.

Potter Line Printers increase system reliability, reduce maintenance and build customer confidence. For more information on the complete line of Potter printers, magnetic tape units, disk drives and 96-column card equipment, write today to Potter Instrument Company, Inc., 532 Broad Hollow Road, Melville, N. Y. 11746 or phone (516) 694-9000.



POTTER. A lot more than less expensive.

Nickels & Dimes

Scientific Control Corp. cut its loss for the year ended April 30 to \$3.3 million, or 83 cents per share, from the loss of \$15.2 million, equal to \$6.58 per share, registered a year earlier. Sales also decreased radically, from \$6.7 million to \$1.5 million. With those type of results, when sales get to zero, the firm might break even.

\$\$\$

Burroughs Corp. has declared a quarterly dividend of 15 cents per share payable Jan. 20 to holders of record on Dec. 24. The 288th dividend continues a record of cash dividends that has been uninterrupted for 77 years, the firm said.

\$\$\$

Even though earnings for the year ended Sept. 30 were equal to the results reported last year, Bresnahan Computer Corp. said the fourth quarter of this year was the fourth consecutive one in which earnings were up over the prior quarter. The 8 cents per share earned in the fourth quarter was also ahead of the 1 cent per share earned in the same quarter a year ago.

\$\$\$

Computer Dimensions, Inc. set records for both earnings and revenues in the nine months that ended Sept. 30. Revenues jumped to \$6.5 million, a 60.5% increase for the same period a year earlier, and earnings reached \$287,291, or 18 cents a share, up from the \$51,256, or 4 cents per share, registered in 1970.

\$\$\$

Scan-Data had its best quarter in its history during the third quarter ended Sept. 30. The firm said it had reduced its net loss for the quarter to \$120,000 compared with \$297,000 a year earlier and an average loss of \$440,000 in the first two quarters of this year. Revenues for the quarter were \$1.2 million and for the nine months revenues reached \$2.1 million.

\$\$\$

Datum Inc. also had the best quarter in its history during the third quarter. Earnings were \$63,510, equal to 6 cents per share, on sales of \$1.1 million. In the same period a year ago, the firm lost a penny a share.

Control Data Reports Sharp Computer Losses During Year's Third Quarter

MINNEAPOLIS — Sharp losses in computer operations caused greatly reduced earnings in the third quarter at Control Data Corp. even though profits of subsidiary Commercial Credit Corp. rose in the period.

At the same time, the results for the nine months were higher than the comparable period a year ago.

The computer losses for the third quarter amounted to \$9.8 million, the firm said, up sharply from the loss of \$4.4 million registered in the same year earlier period. The firm said that there was a \$5.5 million pre-tax inventory adjustment figured into the losses.

Overall the firm earned \$1.4 million, or seven cents per share on revenues of \$123.1 million before an extraordinary charge of \$203,000, or two cents per share.

In the same period last year the firm earned \$4.1 million, equal to 26 cents per share, on sales of \$132.4 million, before an extraordinary gain of \$322,000, or two cents per share.

In the nine month period earnings totaled \$26 million, equal to \$1.72 per share on sales of \$405.2 million. In the same

period last year earnings were \$6.1 million, equal to 34 cents per share, and revenues were \$401.8 million, the firm said.

Software Results Mixed As SDC and PMI Report

NEW YORK — Two software houses have issued quarterly reports with mixed results.

System Development Corp. (SDC) reported lower earnings and revenues while Programming Methods Inc. (PMI) reported increases in both categories.

SDC had earnings of \$302,000 or 9 cents per share and sales of \$10.6 million for the first quarter of fiscal 1972 which ended Sept. 26.

This compares to earnings of \$428,000, equal to 13 cents per share, and sales of \$11.6 million for the corresponding period last year.

The earnings this quarter were substantially influenced by a tax loss carryforward benefit of \$138,000, the firm said. Last year's earnings were influenced by a similar benefit of \$199,000.

PMI's revenues increased 105% and net income increased 33% for the third quarter ended Sept.

30, over the corresponding period last year. Nine month revenues were 104% ahead of the year-earlier period, and net income for the first nine months was 34% ahead.

PMI third quarter revenues increased to \$3.2 million from \$1.6 million for the comparable 1970 quarter. Income was \$189,683, or 21 cents per share, in comparison with \$142,935, or 17 cents a share, for the same period last year.

For the nine months, revenues increased to \$8.8 million from the \$4.3 million reported a year earlier. Income was \$540,617, or 60 cents per share, in comparison with \$404,599, or 47 cents a share.

Acquisitions

Terminal Equipment Corp. has agreed in principle to acquire Edityper Corp., a subsidiary of Epsco, Inc. for an undisclosed amount of cash and stock. Edityper, manufacturer of automatic typewriters and word processing equipment, will operate as a wholly owned subsidiary.

Continental Telephone Corp. of Missouri purchased Financial Data Systems, Inc., a proprietary software company. Terms were not disclosed.

Western Union Corp. has signed a share exchange agreement with Computer Logistics Corp., a national information services firm specializing in warehousing operations.

Rapidata, Inc., supplier of remote access computer services, has acquired the Honeywell 430 time-sharing interests of Boeing Computer Services, Inc. for an undisclosed amount of cash.

Computing and Software, Inc. has sold its personnel services business to Consultants and Designers, Inc. and the California segment of its commercial education business to Automation Institute of Los Angeles.

Systems, Science and Software, Inc., a research and technology firm, has acquired Integrated Computer Systems, Inc., a systems and software company. Terms of the transaction were not disclosed.

Data Access Systems, Inc. supplier of communication terminal devices, has acquired Data Leasing Systems for cash and stock. Data Leasing Systems will operate as a wholly owned subsidiary.

Informatics Inc. has sold its majority interest in Dataplan, Inc. to The Interpublic Group of Companies, Inc. Terms of the sale were not disclosed.

OCR goes under-grand

Led by ORBIT/1, the low-cost/high-performance optical character reader by Orbital Systems, Inc. An automatically fed OCR document reader, complete with output stackers, for an industry-low price of less than \$1,000.

That reduces your data input costs—everywhere from site preparation to personnel to maintenance.

And increases your data processing efficiency. Facts being proven daily at our successful installations throughout the world.

ORBIT/1—available now for under \$1,000 a month.



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The only display terminal that eliminates glaring mistakes.

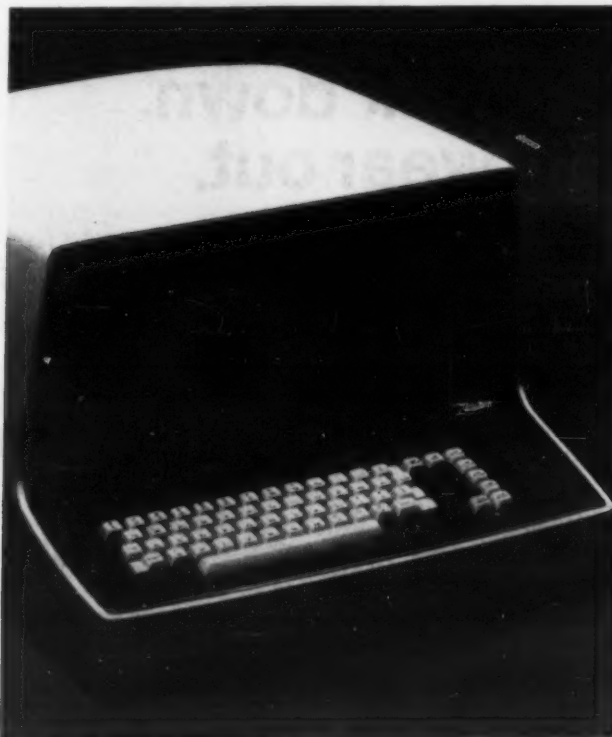
Lear Siegler introduces the LSI 7700 Interactive Display Terminal. It's the only one with a glare-free screen to help avoid operator errors. The 12-inch screen, along with the large, easy-to-read characters, eliminates mistakes attributed to misreading a glaring screen of small characters.

The 7700 is available in 1,000 or 2,000 character versions. Both are self-contained—equipped with keyboard, control and editing logic, character generator, refresh memory, interface and split screen.

In standard configuration, the versatile 7700 is completely compatible with EIA Standard RS232; or with a parallel transfer rate of 15,750 characters per second. An optional configuration permits serial transmission up to 120,000 bps.

Write today for more of our output. And avoid terminal mistakes.

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Computerworld Stock Trading Summary

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CLOSING PRICES THURSDAY, DECEMBER 2, 1971

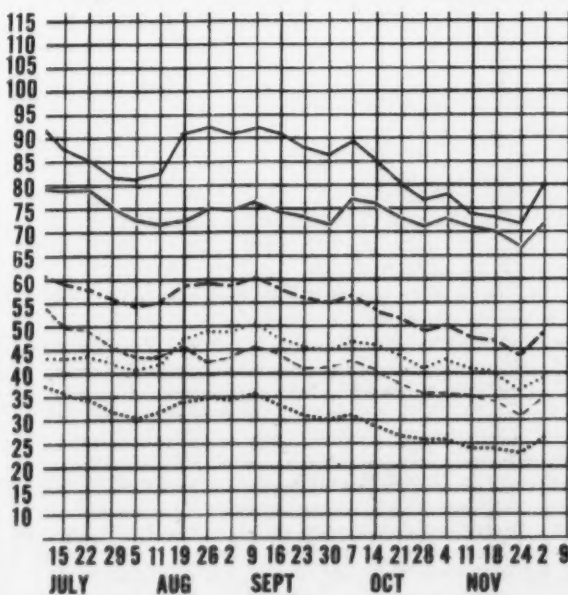
E X C H	1971 RANGE (1)	CLOSE DEC 2 1971	WEEK NET CHNGE	WEEK PCT CHNGE
SOFTWARE & EDP SERVICES				
O ADVANCED COMP TECH	1- 4	1 3/4	+ 3/4	+75.0
A APPLIED DATA RES.	5- 13	5 1/4	+ 3/4	+16.6
J APPLIED LOGIC	1- 3	3/8	+ 1/8	+50.0
N AUTOMATIC DATA PROC	44- 68	66 7/8	+9	+15.5
O AUTO SCIENCES	1- 8	1/2	0	0.0
O COMPUTER NETWORK	2- 11	4 1/4	- 1/4	-5.5
O COMPUTER PROPERTY	5- 11	5 1/8	+ 1/8	+2.5
N COMPUTER SCIENCES	6- 17	6 3/4	+ 1/4	+3.8
O COMPUTER TECHNOLOGY	4- 11	5	+1	+25.0
O COMPUTER USAGE	5- 16	7 1/2	+2	+36.3
O COMP AUTOMOT REPORTS	6- 13	7 1/2	+ 3/4	+11.1
N COMPUTING & SOFTWARE	17- 45	18 3/4	+2 1/4	+13.6
O COMRESS	1- 4	1 3/8	+ 1/8	+10.0
O COMSHARE	4- 8	4 3/8	+ 1/8	+2.9
O DATA AUTOMATION	1- 4	1/4	0	0.0
O DATA PACKAGING	6- 10	6 1/8	- 1/8	-2.0
O DATA/ATION SERVICE	1- 3	3/8	- 1/8	-25.0
L DATATAB	4- 10	5 7/8	+ 1/8	+2.1
O EDP RESOURCES	5- 16	5 3/8	+ 1/4	+4.8
A ELECT COMP PROG	2- 7	2 3/8	+ 1/8	+5.5
N ELECTRONIC DATA SYS.	34- 85	47 3/8	+8	+20.3
O INFORMATICS	6- 15	8 1/8	+2 1/2	+44.4
O I.O.A. DATA CORP	1- 3	1	+ 1/8	+14.2
A ITEL	7- 23	7 1/8	+ 3/8	+5.5
O KEANE ASSOCIATES	4- 14	5	0	0.0
O KEYDATA CORP	5- 14	8 1/2	0	0.0
A MANAGEMENT DATA	5- 11	5 1/2	0	0.0
O NATIONAL CSS INC	7- 14	7	+ 1/2	+7.6
O NAT COMP ANALYSTS	1- 4	3/8	- 1/8	-25.0
P ON LINE SYSTEMS INC	7- 18	8 1/2	+ 3/4	+9.6
N PLANNING RESEARCH	10- 26	12 1/8	+1 3/8	+12.7
O PROGRAMMING METHODS	10- 29	19 1/4	+1 3/4	+10.0
O PROGRAMMING & SYS	1- 4	1 3/8	+ 1/8	+10.0
O SCIENTIFIC COMPUTERS	2- 3	2 1/4	0	0.0
O SIMPLICITY COMPUTER	1- 4	3	0	0.0
O SOFTWARE SYSTEMS	1- 3	1	+ 1/4	+33.3
O TBS COMPUTER CENTERS	4- 9	4	- 1/4	-5.3
O TOLLEY INTL CORP	3- 8	6 3/4	+ 3/8	+5.8
O TRACOR COMPUTING	2- 5	1 7/8	+ 1/8	+7.1
O TYMSHARE INC	4- 15	7 1/8	+ 1/4	+3.6
O UNITED DATA CENTER	2- 7	4 3/8	+ 1/8	+2.9
N UNIVERSITY COMPUTING	14- 38	16 3/4	+3 1/4	+24.0
A URS SYSTEMS	5- 11	6 3/8	+1 1/8	+21.4
O VORTEX CORP	2- 6	5 3/4	+ 1/4	+4.5
PERIPHERALS & SUBSYSTEMS				
N ADDRESSOGRAPH-MULT	24- 48	32 1/8	+4 1/8	+14.7
O ALPHANUMERIC	1- 6	7/8	0	0.0
N AMPEX CORP	12- 25	12 5/8	+1	+8.6
O ANDERSON JACOBSON	5- 10	5 3/8	+ 7/8	+19.4
O ATLANTIC TECHNOLOGY	3- 8	3 1/8	+ 1/8	+4.1
A BOLT, BERANEK & NEJ	4- 8	5 1/8	+1	+24.2
N BUNKER-RAND	6- 17	7	+1 3/8	+24.4
A CALCOMP	14- 33	16 5/8	+2 1/4	+15.6
O COGNITRONICS	2- 9	2	- 1/8	-5.8
O COLORADO INSTRUMENTS	2- 8	1 3/4	+ 1/4	+16.6
O COMPUTER COMMUN.	5- 19	5 1/2	+ 1/2	+10.0
A COMPUTER EQUIPMENT	3- 7	3 1/8	+ 1/4	+8.6
A COMPUTEST	4- 20	5 5/8	+1 1/8	+25.0
O CONSOL COMPUTER LTD.	1- 12	1 5/8	+ 3/8	+30.0
A DATA PRODUCTS CORP	3- 10	4 3/8	+ 1/4	+6.0
O DATA RECOGNITION	3- 8	3 1/2	- 1/2	-12.5
O DATA TECHNOLOGY	3- 9	4 1/8	+ 3/4	+22.2
O DIGITRONICS	2- 8	3 3/8	0	0.0
N ELECTRONIC M & M	5- 15	5 7/8	+ 5/8	+11.9
O FABRI-TEK	2- 4	2 1/8	+ 1/8	+6.2
O GENERAL COMPUTER SYS	6- 10	7 1/2	+1 1/4	+20.0
N GENERAL ELECTRIC	53-124	60 1/4	+4 1/2	+8.0
O INFOTEX INC	17- 49	23	+3 1/4	+16.4
O INFORMATION DISPLAYS	3- 8	4 1/4	+ 1/4	+6.2
O MANAGEMENT ASSIST	1- 2	3/4	0	0.0
A MARSHALL INDUSTRIES	7- 27	7 1/2	+ 1/8	+1.6
N MEMOREX	20- 78	24 1/2	+3 3/4	+18.0
A MILGO ELECTRONICS	12- 26	13 5/8	+1 7/8	+15.9
N MOHAWK DATA SCI	15- 47	16 3/4	+2 1/8	+14.5
O OPTICAL SCANNING	6- 18	8 1/2	+2 3/4	+47.8
O PHOTON	6- 12	7 3/4	+1 3/8	+21.5
A POTTER INSTRUMENT	11- 25	14 1/8	+3 1/8	+28.4
O PRECISION INST.	7- 16	9	+ 3/4	+9.0
O RECOGNITION EQUIP	9- 26	12 7/8	+1 7/8	+17.0
O REDCOR CORP.	1- 9	1 1/4	+ 1/4	+25.0
N SANDERS ASSOCIATES	9- 22	12 3/8	+3 3/8	+37.5
O SCAN DATA	6- 15	9 1/4	+ 1/2	+5.7
O TALLY CORP.	6- 16	5 7/8	- 5/8	-9.6
N TELEX	8- 22	10 1/8	+1 3/4	+20.8
SUPPLIES & ACCESSORIES				
N ADAMS-MILLIS CORP	9- 10	10 1/8	+1	+10.9
O BALTIMORE BUS FORMS	6- 10	8 1/2	+ 1/4	+3.0
A BARRY WRIGHT	7- 13	8	+1	+14.2
A DATA DOCUMENTS	14- 29	16 1/4	+1	+6.5
O DUPLEX PRODUCTS INC	8- 11	11	+ 1/4	+2.3
N ENNIS BUS. FORMS	5- 13	6 1/8	+ 3/4	+13.9
O GRAHAM MAGNETICS	9- 35	15 5/8	+1 5/8	+11.6
O GRAPHIC CONTROLS	6- 15	11 3/4	+1 1/2	+14.6
N 34 COMPANY	96-126	125	+7	+5.9
O MOORE BUS. FORMS	36- 42	38 5/8	+1 5/8	+4.3

E X C H	1971 RANGE (1)	CLOSE DEC 2 1971	WEEK NET CHNGE	WEEK PCT CHNGE
COMPUTER SYSTEMS				
N NASHUA CORP	29- 47	45 1/2	+ 5/8	+1.3
O REYNOLDS & REYNOLD	37- 63	59 1/2	+3 3/4	+6.7
O STANDARD REGISTER	14- 23	13 7/8	0	0.0
O TAB PRODUCTS CO	8- 17	15 1/2	+1	+6.8
N UARCO	24- 34	24 1/8	+ 5/8	+2.6
A WABASH MAGNETICS	5- 10	6 1/2	+ 7/8	+15.5
N WALLACE BUS FORMS	13- 26	21 5/8	+1 1/2	+7.4
N BURROUGHS CORP	105-143	137 5/8	+11 1/8	+8.7
N COLLINS RADIO	10- 20	12 3/4	+2 1/2	+24.3
N CONTROL DATA CORP	34- 83	41 5/8	+7 5/8	+22.4
O DATA GENERAL CORP	19- 65	53 1/4	+6 3/4	+14.5
O DIGITAL COMP CONTROL	4- 24	14	+1 1/4	+9.8
N DIGITAL EQUIPMENT	53- 85	69 7/8	+8 5/8	+14.0
N ELECTRONIC ASSOC.	5- 9	5 1/2	+ 7/8	+18.9
A ELECTRONIC ENGINEER.	5- 10	8	+1 3/8	+20.7
N FOXBORO	25- 46	29 1/2	+4	+15.6
O GENERAL AUTOMATION	9- 26	13 1/2	- 1/2	-3.5
N HEWLETT-PACKARD CO	30- 46	44	+4 3/4	+12.1
N HONEYWELL INC	83-118	117 3/4	+8 3/4	+8.0
N IBM	284-364	309 1/2	+17 3/4	+6.0
N INTERDATA INC	6- 11	6 1/4	+ 1/8	+2.0
N NCR	25- 49	26 3/8	+1 3/8	+5.5
N RCA	26- 41	34 3/8	+2 7/8	+9.1
N RAYTHEON CO	27- 46	35 1/2	+4 1/2	+14.5
N SPERRY RAND	23- 38	27 3/8	+2 3/8	+9.5
A SYSTEMS ENG. LABS	7- 18	7 3/4	+ 7/8	+12.7
N VARIAN ASSOCIATES	11- 18	13	+1 3/8	+11.8
N VICTOR COMPUTOMETER	12- 27	13 3/8	+1 3/8	+11.4
N JANG LABS.	29- 50	38 3/4	+6 3/4	+21.0
N XEROX CORP	85-121	113 3/4	+7 1/4	+6.8
LEASING COMPANIES				
A BOOTH COMPUTER	11- 27	12 5/8	+ 5/8	+5.2
O BRESNAHAN COMP.	2- 4	2	+ 3/8	+23.0
O COMPUTER EXCHANGE	2- 9	1 5/8	0	0.0
A COMPUTER INVSRS GRP	7- 14	7 3/4	+1 1/8	+16.9
N DPE INC	8- 19	9 1/4	+1 1/8	+13.8
O DATRONIC RENTAL	2- 4	2 5/8	+ 1/8	+5.0
A DCL INC	5- 13	7 7/8	+1 1/4	+18.8
A DEARBORN-STORM	12- 23	20	+3 1/8	+18.5
A DPA, INC.	4- 9	7 7/8	+1 3/8	+21.1
A GRANITE MGT	7- 13	7 1/2	+ 1/2	+7.1
A GREYHOUND COMPUTER	7- 11	7	+ 1/4	+3.7
N LEASCO CORP	16- 26	21 3/4	+3 1/8	+16.7
O LECTRO MGT INC	2- 5	2 1/2	- 1/4	-9.0
O NCC INDUSTRIES	3- 8	6 1/8	- 1/8	-2.0
A ROCKWOOD COMPUTER	3- 9	3 1/8	+ 1/8	+4.1
O SYSTEMS CAPITAL	3- 7	3 3/4	- 1/4	-6.2
N U.S. LEASING	16- 37	37	+2 7/8	+8.4

EXCH: N=NEW YORK EXCHANGE; A=AMERICAN EXCHANGE
L=NATIONAL EXCHANGE; O=OVER-THE-COUNTER
P=PHIL-BALT-JASH
D-T-C PRICES ARE BID PRICES AS OF 3 P.M. OR LAST BID
(1) TO NEAREST DOLLAR

Computer Stocks Trading Index

— Computer Systems — Software & EDP Services
..... Peripherals & Subsystems Leasing Companies
— Supplies & Accessories — CW Composite Index



Earnings Reports

INFORMATICS		
Six Months Ended Sept. 25		
	1971	1970
Shr Ernd	\$0.05	\$0.11
Revenue	9,193,000	8,785,000
Loss Disc		
Op	167,000	39,000
Earnings	79,000	166,000

a-Restated to reflect separately the result of the Los Angeles data center operation before corporate allocation; disposal of the center was completed in the second quarter this year. The 1970 figures restated to retroactively reflect disposition of the Oakland data center in October 1970.

ROCKWOOD COMPUTER

Six Months Ended Sept. 30		
	1971	1970
bShr Ernd	\$0.27	\$0.35
Revenue	25,796,234	22,884,891
Spec Item	c316,849 d(6,393,871)	
Earnings		
(Loss)	e1,224,347 (5,229,404)	

a-Restated. b-Based on income before special items. c-Consists of \$281,598 gain from repurchase of company's debentures and tax loss carryforward credit of \$35,251. d-Loss applicable to discontinued operations, sales of subsidiaries and other assets, including estimated termination costs of \$6,495,346 less gain of \$101,475 from repurchase of debentures. e-Equal to 37 cents a share.

CALIFORNIA COMPUTER PRODUCTS

Three Months Ended Oct. 3		
	1971	1970
Shr Ernd	\$0.26	\$0.19
Revenue	13,483,000	7,602,000
Earnings	638,000	436,000

a-Restated.

NORTH AMERICAN PHILIPS

Three Months Ended Sept. 30		
	1971	1970
Shr Ernd	\$0.50	\$0.28
Revenue	153,933,000	135,827,000
Earnings	4,422,000	2,542,000
9 Mo Shr	a1.33	1.09
Revenue	438,768,000	409,469,000
Spec Item	4,866,000	
Earnings	b6,902,000	9,629,000

a-Based on income before special item. b-Equal to 78 cents a share.

DPF

Three Months Ended Aug. 31		
	1971	1970
Shr Ernd	\$0.31	\$0.40
Revenue	11,687,000	a11,972,000
Earnings	1,244,000	1,626,000

a-Restated net of computer maintenance contract costs.

APPLIED MAGNETICS

Year Ended Sept. 30		
	1971	1970
Shr Ernd	\$0.35	\$0.54
Revenue	24,030,566	26,544,857
Spec Chg	b92,691	
Earnings	c1,351,191	2,134,853

a-Based on income before special charge. b-From sale of Schafer Electronics Corp., a wholly owned subsidiary. c-Equal to 33 cents a share.

SCANTLIN ELECTRONICS

Nine Months Ended Sept. 30		
	1971	1970
Shr Ernd	\$1.13	
Revenue	5,189,954	\$6,670,980
Spec Cred	a3,866,280	
Earnings		
(Loss)	2,405,027 (3,033,671)	

a-From sale of license and patents.

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